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THE OIL WEEKLY

OIL & GAS ENGINEERING

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October 9, 1931

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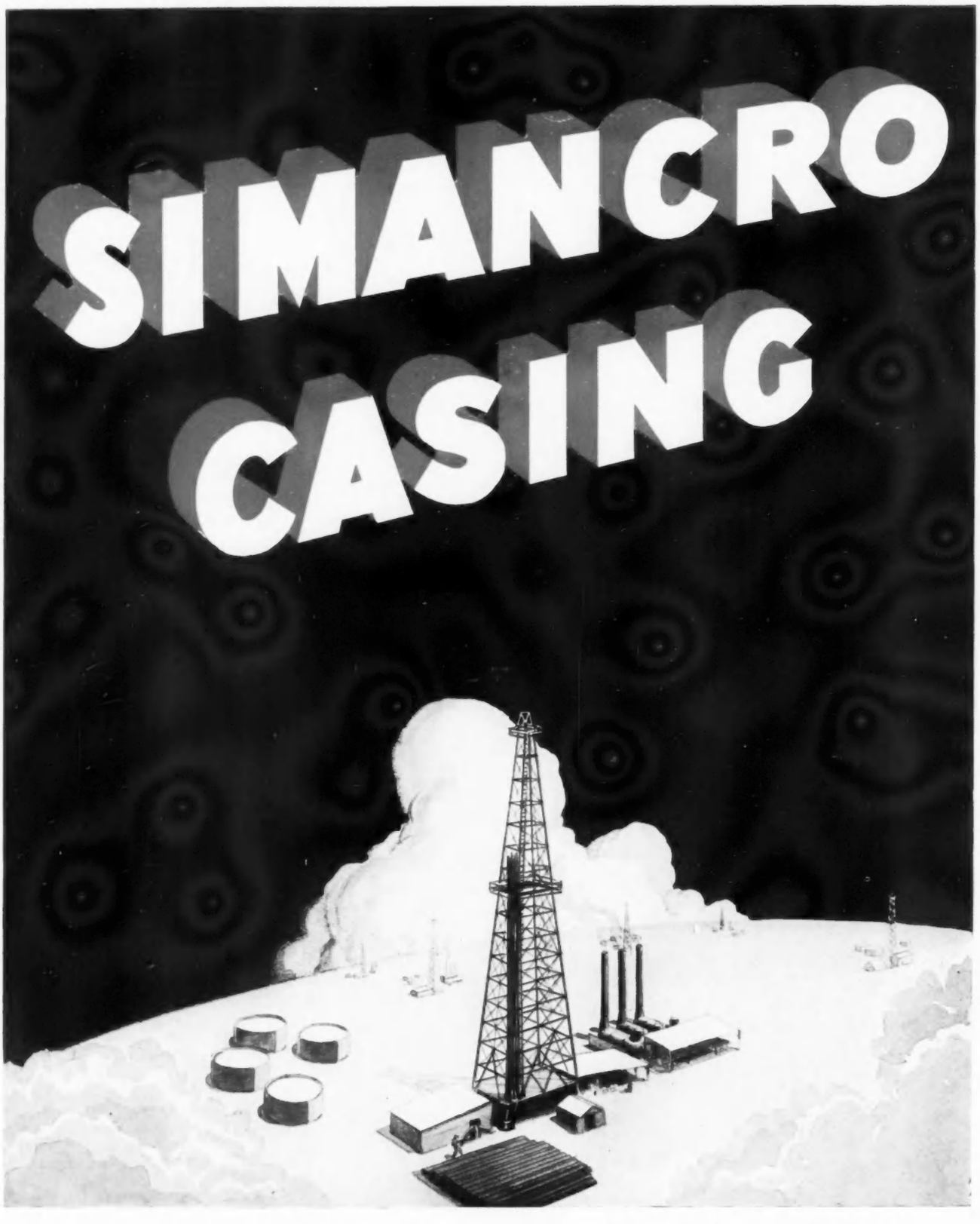

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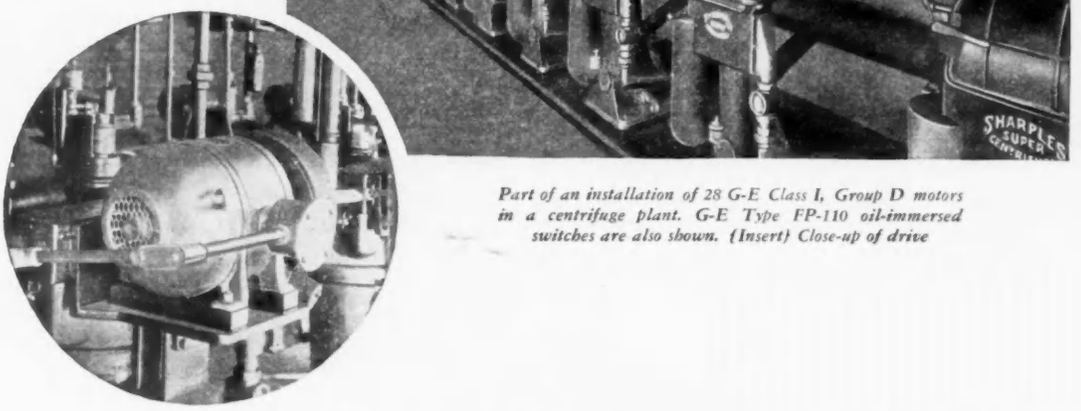
G-E EXPLOSION-PROOF MOTORS ... Boost Safety ... Cut Maintenance



Part of an installation of 28 G-E Class I, Group D motors in a centrifuge plant. G-E Type FP-110 oil-immersed switches are also shown. (Insert) Close-up of drive

GENERAL ELECTRIC manufactures a complete line of explosion-proof, totally enclosed, fan-cooled induction motors available in ratings from 1 to 75 hp. These motors have been tested and listed by The Underwriters' Laboratories for Class I, Group D hazardous locations and bear the Underwriters' label indicating their suitability for use where inflammable volatile liquids, inflammable gases, or mixtures of this class are stored, manufactured, used, or handled.

In centrifuge plants and other installations where considerable dust and dirt are encountered in addition to hazardous gas, motors of this type have the advantage of not only increasing the safety factor, but also reducing the maintenance because the enclosing features keep dust and dirt out of the windings. Descriptive publication GEA-1341A will be sent to you upon request to your nearest G-E office.

For dirty, dusty conditions where gas is not present, G.E. manufactures a line of motors of similar construction, totally enclosed, and fan-cooled. Ask for a copy of descriptive publication GEA-1326A.

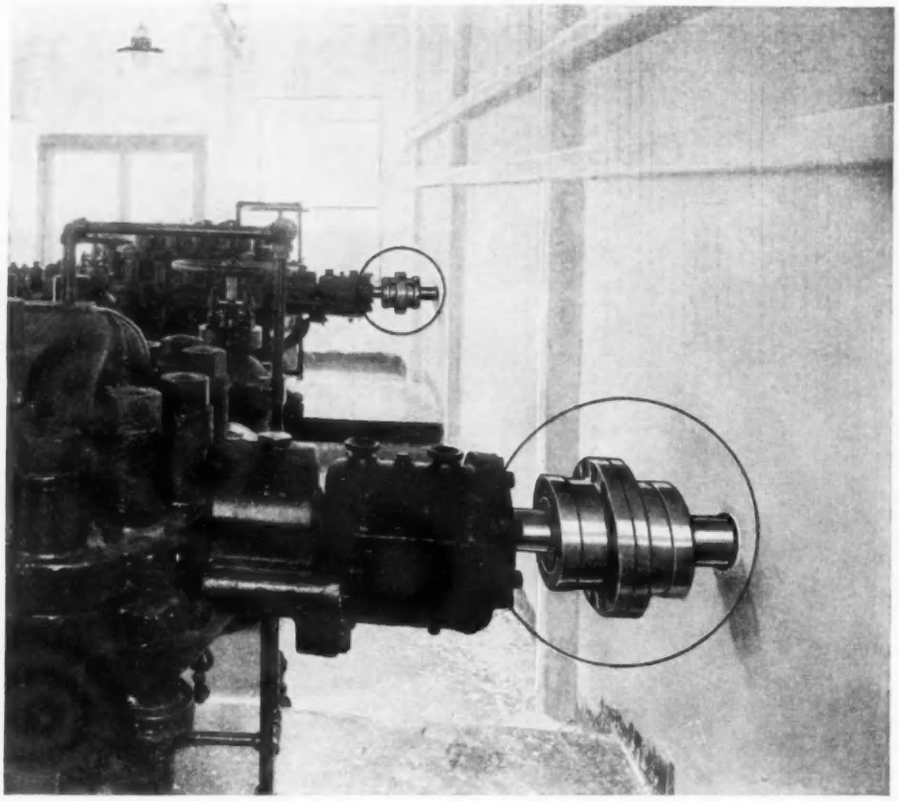
200-507

JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N. B. C. NETWORK

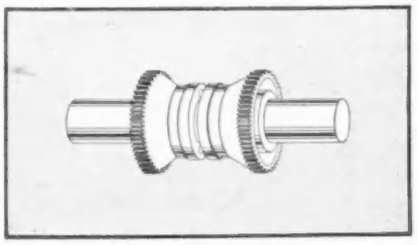
GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

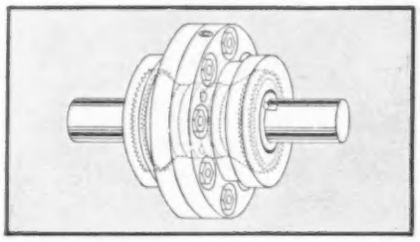
Fast's Self-Aligning Couplings at the Atlantic Pipe Line Company, Midland, Texas.



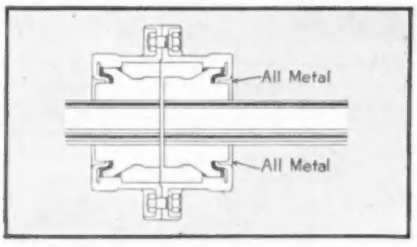
Permanent means Permanent with FAST'S



1 *The two hub gears carry generated spur gears.*



2 *Internal teeth of the sleeve mesh with the hub gears, the entire inner assembly always in a clean oil bath.*



3 *All metal bearing rings permanently exclude dust, grit, fumes, water, eliminating the hazard of wear.*

WHEN we say that Fast's Self-Aligning Coupling is free from grit, dust, flying abrasives and moisture, we don't mean that it is free for a month, six months or a year.

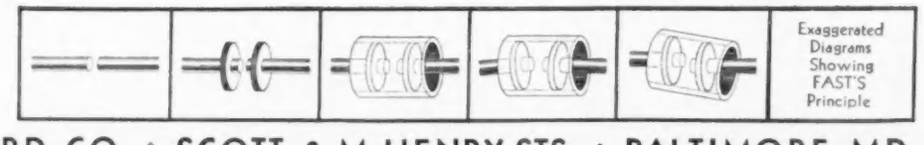
We mean that these machinery-wearing materials can never get in. When we say "permanent," we mean *"permanent." Fast's couplings last!*

The reason is easy to understand. Metal-to-metal bearings seal the coupling. No perishable make-shift materials to harden, dry-out, break down, wear out and let in dust. Instead, metal bearing rings, machined to close tolerances, exclude dust throughout the life of the coupling.

Oil carries the load in Fast's Coupling. It lubricates and cushions between the gear teeth. It stays clean, fresh, efficient because dirt is excluded by metal bearing rings on metal bearing hubs.

Years of service have proved that Fast's Couplings "last as long as the connected machines."

FAST'S *Self-Aligning* COUPLINGS



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TRACTOR

PERHAPS the job is pulling rods or tubing. Or it may be hauling pipe, or structural steel, or supplies. Or building a road, or moving earth. The uses for a "Caterpillar" track-type Tractor in the oil fields are well-nigh endless. Hook a load to the drawbar—or equip the tractor with a winch to multiply its utility—use it for any job that calls for power, sure traction in mud or sand, dependability. The result?—a satisfying saving of men, money, minutes.

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— by a principle of proved integrity

IN applying integration to Metric Integrating Orifice Meters and Flowmeters, a principle of obvious simplicity is used. The accuracy of this method, in totalizing the quantity which has passed through the orifice, *for all rates of flow or variations in pressure,* has been established by abundant records of both laboratory and field operation.

Multipliers or factors for changes in pressure are not required. Proper account of the time element is provided for by the use of a Telechron clock. Operation is continuous. Multiplication is mechanically performed once a minute. Field adjustment is a simple matter.

For complete details, ask for Bulletin E-16

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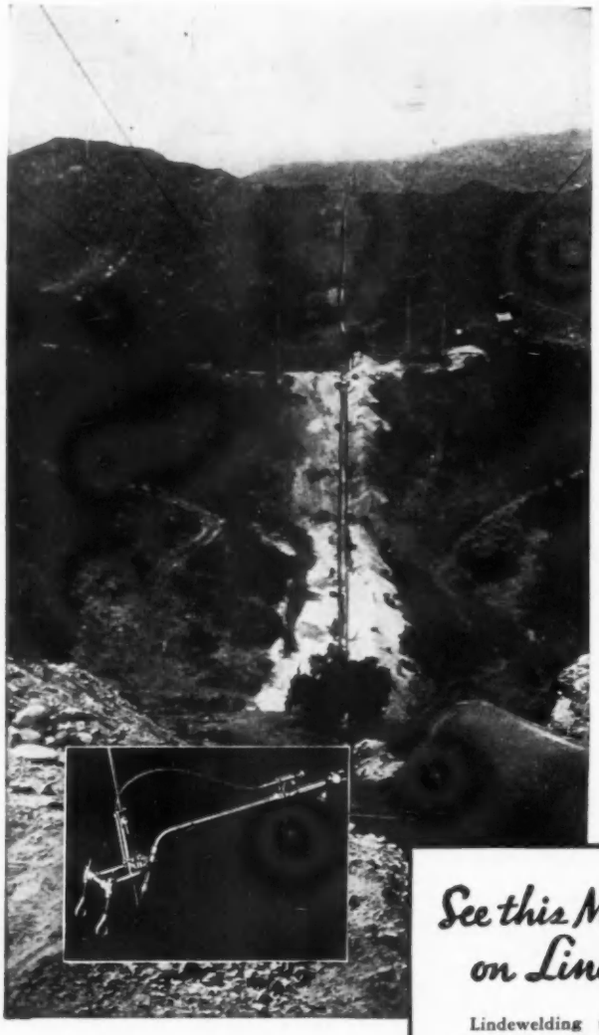
LINDEWELDING



A Lindewelded 26-in. section of a 210-mile gas line in California.

* * *

Inset shows the Lindewelder, a special appliance which increases the speed of Lindewelding.

a speedier and cheaper method of OXY-ACETYLENE WELDING

ON a Lindewelded oil line in Texas, it was necessary to run the oil through before the last 15 miles were in the ditch. The line was lowered while the oil pressure ranged from 300 to 600 pounds. Not a joint failed. Lindewelds are strong.

But that is not all:

Lindewelding increases welding speed 30 to 60 per cent. and reduces welding material consumption 35 to 40 per cent.

Lindewelding can be done with ordinary blowpipes or with special apparatus which makes welding almost automatic and further increases its speed. Experienced welders quickly adapt themselves to it, and beginners learn it more readily than other methods.

Procedure Controls for this new method of oxy-acetylene welding are available to all Linde customers through Linde Process Service. Any Linde District Office will be glad to give you complete information.

See this Motion Picture on Lindewelding

Lindewelding technique differs from oxwelding technique in that it employs a special rod, a special flame adjustment, and the "back-hand" method of blowpipe manipulation. The actual steps in making a Lindewelded joint are shown in our motion picture, "The Lindeweld Process for Pipe Line Construction." This picture will be loaned without charge to pipe line officials and welding or engineering societies. It is furnished in 16 mm. and 35 mm. safety film and can be obtained by writing to any Linde District Office.

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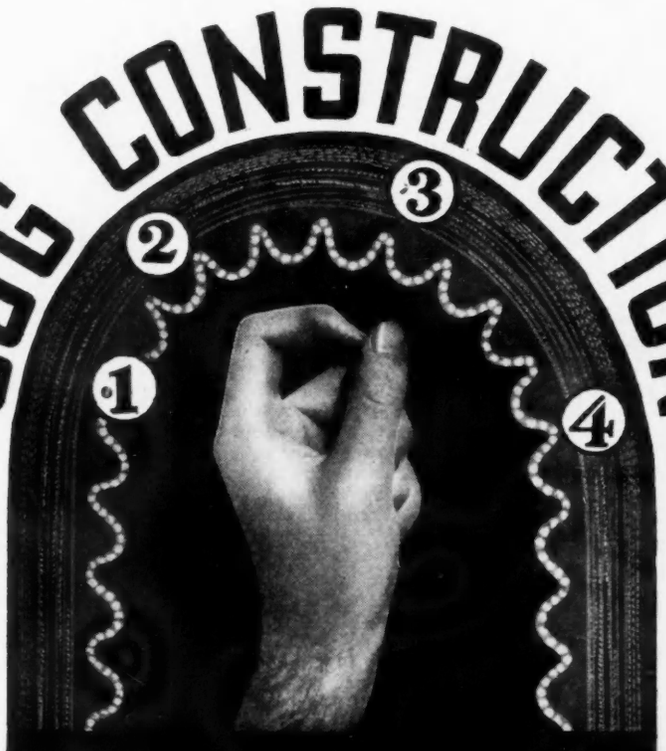

DAYTON COG-BELTS BEND AS EASILY—AS NATURALLY AS YOU BEND YOUR FINGER

NOW... MODERNIZE YOUR MACHINES... MAKE THEM OPERATE PROFITABLY BY EQUIPPING WITH

DAYTON COG-BELTS

Daytons are the outstanding modern V-belts. They don't heat, bulge, buckle or turn over in the pulley grooves. They last longer under hard conditions, high speeds and heavy loads... *all because of their famous cog construction and die-cut sides.* They're "built to bend"—easily, at high speed, around small-diameter pulleys.

The advantages which spring from this revolutionary construction have made Daytons a leading factor in modernizing power transmission throughout industry.

Look at the illustrations. Note the strong points in Dayton Cog-Belt construction. Then make up your mind that you'll find out what Cog-Belts will do toward modernizing your own plant and solving your own transmission problems. Let us send you a Dayton Cog-Belt catalog and sample section of the belt. Write today.

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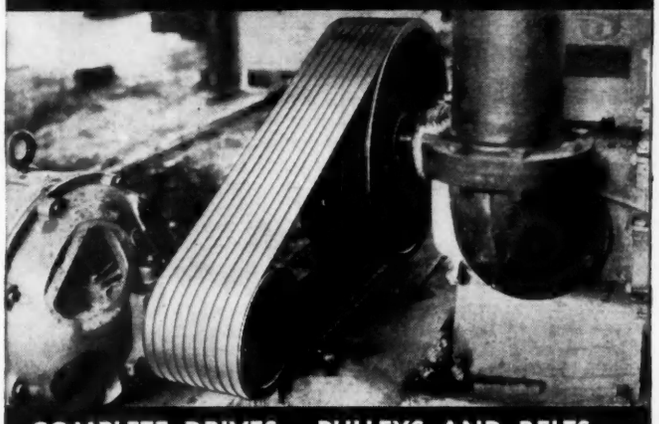

COMPLETE DRIVES—PULLEYS AND BELTS—IN STOCK. FRACTIONAL TO 100 H. P.

Dayton
COG-BELT DRIVES

1 Cog Section . . . permits high speeds around small-diameter pulleys, without heating, internal friction, bulging, rippling, or crawling. Daytons are "built to bend."

2 "Neutral Axis" . . . the strength section . . . permanently pre-stretched while kept under tremendous tension in the vulcanizing chamber. This process is patented and exclusive.

3 Outer Section . . . for balance. This section is under tension when flexed over the pulley. It consists of bias-cut fabric providing just the right amount of "give."

4 Entire belt is die-cut . . . for precision . . . for greater gripping power. . . . makes positive speed control possible. Daytons are accurate and *stay* accurate. Dayton construction is patented.

Baker Wall Scraper . . .

The Baker Rotary Hydraulic Expansion Wall Scraper was designed primarily to scrape mud, cement, and other forms of coating from the walls of the oil sand. It is reasonable to suppose that the oil sands become heavily plastered with drilling mud, and unless this is scraped off it is never properly cleaned, even where there is high pressure in the sands.

Experience has shown that the roller type of reamer does not accomplish the full purpose desired, because it has a tendency to push mud and other coatings into the wall of the hole, rather than to remove them.

The Baker Wall Scraper, on the other hand, thoroughly scrapes off and cleans the walls, exposing the sands in prime condition for production or other purposes.

This is not its sole use, however. It has many other advantages, and new uses are being discovered constantly. The following will give a suggestion as to its adaptability and wide range of usefulness:

Unusual Reaming Capacity: Size No. 3, maximum O. D. 4¼", will run in 5¾" casing, and ream out to 9¾". No. 3-A, constructed with heavier body to give strength when using 3" drill pipe, has a maximum O. D. of 5⅛", runs in 6⅝" casing, and reams out to 11". No. 4, O. D. 5¾", runs in 7" casing, and reams out to 11". No. 5, O. D. 6¾", runs in 8⅝" casing and reams out to 14". No. 6, O. D. 7¾" runs in 9" casing, and reams out to a full 19". No. 8, the largest stock size, O. D. 10", runs in 13⅜" casing, and reams out to 29". All Blades are stocked in ¼" steps.

1. **To straighten a crooked hole.** The Baker Wall Scraper is used to start a shoulder, or to ream out an extended cavity of any desired depth and of a greater diameter than that of the hole being drilled at the point where the hole starts to deviate from the vertical. The well is then ready to drill ahead, the bit resting vertically on the shoulder which has been underreamed. The various sizes of the Wall Scraper give a maximum reaming size of from 9¾" to 29".

2. **Landing a liner.** Scraping or under-reaming with the Baker Wall Scraper is used to secure a full gage hole of any desired diameter when landing a liner for production. This enables liner to go to bottom easily, and to wash over when it is desired to pull the liner.

3. **When bottom plug fails.** After bottom water has been plugged back with cement, a string of casing set, and the well put on production for a time, it is not uncommon for the water to break in again. Sometimes, also, a test for water after a cementing job will show that the shut-off is not effective.

After drilling out the old cement with a bit, it is now possible, by using the Baker Wall Scraper, to ream out all of the old cement and secure the original full gage of the hole. The hole may then be plugged back, or re-cemented, and the well can be saved, whereas it would otherwise be ruined, sooner or later, by this inflow of water.

4. **Scraping before cementing.** Many operators use the Baker Wall Scraper to scrape down the walls of the hole before undertaking a cement job, for the reason that this exposes a proper substance or formation to which the cement can readily adhere and gives added assurance of an effective job.

5. **Longer life for wells.** When it is considered that many thousands of dollars are spent to drill an oil well and put it on production, the slight additional cost of running the Wall Scraper on every cement job is negligible. By under-reaming with increasingly larger sizes of Blades until a cavity of proper dimensions is cut around the casing shoe and into the formation for a water shut-off, the increased volume and dimensions of cement set at the vital point will insure a job of much longer life and will guarantee a longer productive life for the well.

6. **More production from the well.** Under-reaming with the Baker Wall Scraper, owing to the large degree of expansion possible, serves to expose a much larger area of the productive oil sands. It naturally follows that this makes possible an increased production which may be estimated with fair accuracy on a percentage basis.

7. **Bringing in and cleaning up the well.** Scraping of the oil sands makes it possible to bring in the well much easier, and it will clean up in much less time because of the cleaned-out wall surface.

8. **Under-reaming before setting the water string.** The Wall Scraper makes it possible to underream a cavity to any desired gage and depth prior to setting a water string. This leaves the smaller, originally-drilled hole in which to center the casing, and a cavity around the shoe to give a better distribution of cement, which insures a better water shut-off. This is particularly valuable in a combination job.

9. **Increasing production.** Production on a well can be materially assisted, also, by pulling the liner, where it is possible to do so, and scraping the producing sands to clean them out and facilitate the flowing of the well.

10. **Under-reaming and Straight Reaming.** As an under-reaming tool the Baker Wall Scraper has a great many advantages. It cuts faster and has a much greater degree of expansion available.

The Baker Wall Scraper has demonstrated its ability to do many unusual things, and to do them well. Without question, it can be made the means of saving much time and money, as well as giving a flexibility in performance that cannot be secured through the use of any other tool.

Safety—No Fishing Jobs. In the designing and engineering of the Baker Wall Scraper, careful consideration was given to the elements of safety in operation, freedom from trouble in the hole, and fishing jobs.

Every precaution was taken to assure sufficient strength to eliminate any possibility of failure, even under the most strenuous operating conditions. Chrome nickel steel, chrome vanadium steel, and other suitable materials, properly heat treated wherever necessary or advisable for increased strength, have been used.

That these precautions have accomplished the desired result is shown by the fact that while the Wall Scraper has been run many hundreds of times, under every operating condition, nothing but the expected wear has happened.

The Scraper Blades close in a downward direction, swinging into the body of the tool. This adds considerably to the safety of the tool in the well. The contact of the upper edge of the blades against the casing shoe serves to help—rather than to hinder—the closing action in coming out of the hole. The Blades cannot stick.

As there is a free circulation of fluid through the Wall Scraper, at all times, regardless of the position of the Blades, there is not any danger of the circulation becoming plugged and causing a wet job.

Complete, Illustrated Literature Available. In the space here available it is not possible to do more than give a generalized statement of the capabilities of this unusual tool. We have prepared, however, an elaborate portfolio covering its description, actual examples of unusual performance, details of operation and handling under various conditions, specifications for each size of tool, recommended parts and equipment list for either domestic or foreign use, details of construction, and a detailed price list for each of its various parts in the different sizes. This portfolio is now available and will be sent immediately on request. Write for your copy today.

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THE OIL WEEKLY

October 9, 1931
Vol. 63, No. 4

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Editor

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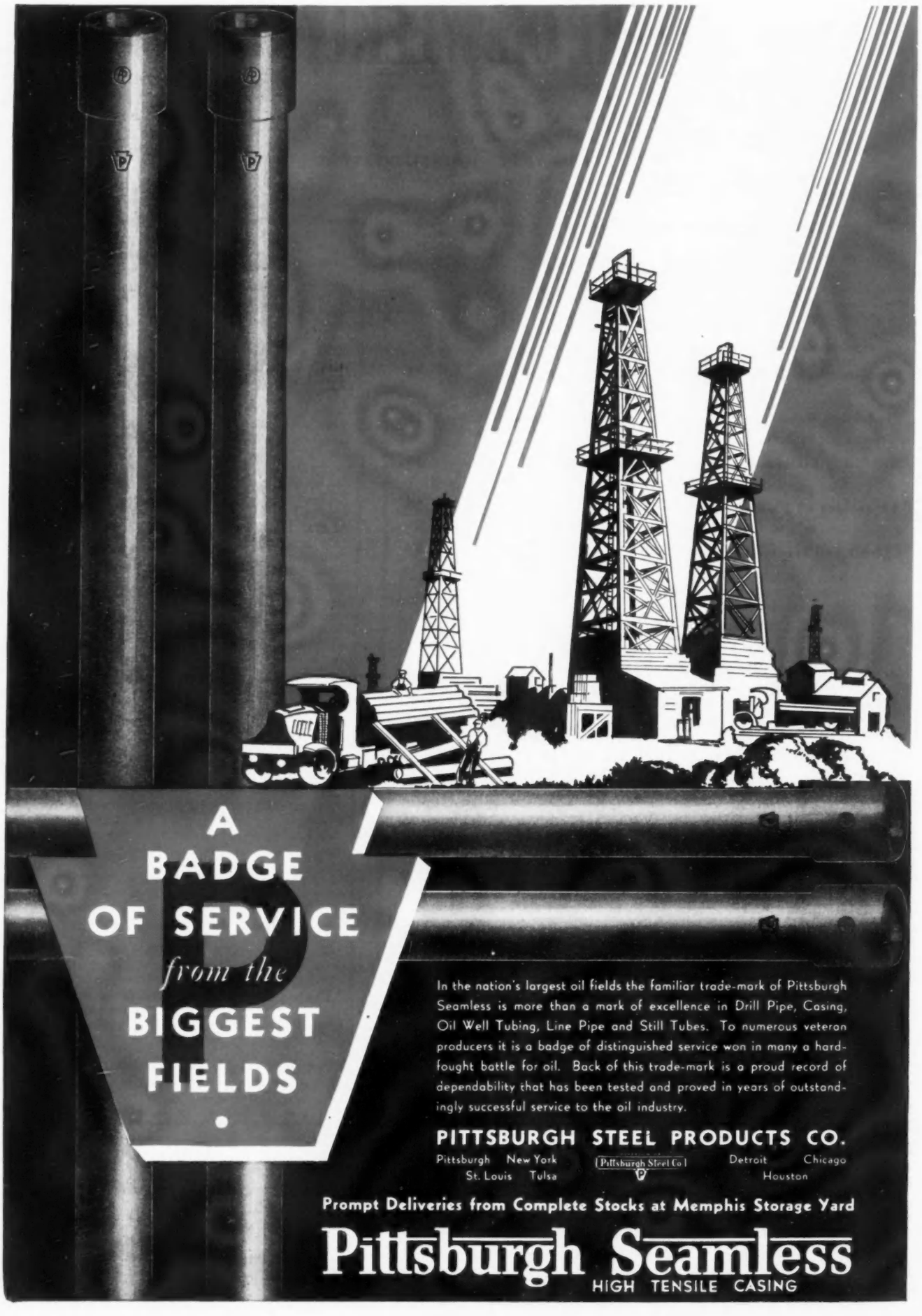
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OCT 12 1931

THE OIL WEEKLY

VOLUME 63, NO. 4 OCTOBER 9, 1931

THE WEEK'S NEWS

River Bed Bill Puts Texas in Oil Business

Austin, Texas.—By threatening to call another special session to consider the subject, Governor Sterling forced passage of the riverbed bill on Saturday, October 3. This bill will cause the drilling of from 60 to 75 wells in the bed of the Sabine River where it meanders for some nine miles through the East Texas oil field, and is expected to bring from $5,000,000 to $10,000,000 into the depleted treasury of the state of Texas. The bill applies only to the stream beds of the state of Texas to which title was retained in the passage of the river bed bill of 1917.

The Board of Mineral Development, consisting of the governor, the chairman of the railroad commission and the commissioner of the general land office, is created to carry out the provisions of the measure. This board is authorized to receive: (a) proposals to lease the river beds for oil or gas developments; (b) proposals to contract for drilling in the stream beds with compensation to the state in oil, gas or money, or by advances in royalties; (c) proposals to purchase these minerals in place, without requirement of development. This latter clause will permit an offsetting leaseholder to pay the state for the minerals beneath the stream bed, which he may recover from the wells on the offsetting property without drilling in the stream.

To prevent wildcat drilling in all the river beds of the state, the board may not lease properties which are more than two miles from production.

In case lessors do not use the greatest care in safeguarding the stream against pollution, the state may take over and operate the property and cancel the lease. An appropriation of $60,000 for the use of the board was made, and all money received by the board above that required for its operation shall be paid into the general revenue fund, excepting that derived from production located on lands belonging to the schools. All contracts of the board must be signed by at least two members and approved by the attorney general. At least one-eighth royalty shall be reserved to the state on all lands leased by the board.

Suits against the board shall be filed in Travis County, and the burden of proof shall be on the plaintiff. The same clause appearing in the recent conservation law is included, which requires a hearing before the injunction shall be granted, and the posting of bond to indemnify the state from losses through drainage of the river bed. Cases on appeal are given precedent in the appellate courts and the Supreme Court.

The right of eminent domain is granted the board and to lessors for the following purposes: (a) to secure adjoining lands for the placing of power machinery, storage tanks and slush tanks in order to minimize stream pollution; (b) right of way for roads to transport materials to and from the wells. In paying for such land so condemned, the state shall pay only the value of the surface, unless the action prevents the recovery of minerals in place beneath such lands.

Tulsa.—A petition was filed in federal court at Oklahoma City Tuesday to test the legality of martial law in the Oklahoma oil fields.

Frank Russell of Russell Petroleum Company filed the suit against William H. Murray, governor of Oklahoma, Charles F. Barrett, commander of the national guard, and Cicero I. Murray, lieutenant colonel, who is in direct charge of martial law in the oil fields. The petition sets out that the martial law order is in violation of both state and federal constitutions. A permanent injunction is asked.

Paul Walker, chairman of the Oklahoma Corporation Commission, Monday added another demand in behalf of an investigation of oil affairs in Oklahoma. He said so many insinuations had been made concerning violations of proration and military orders that the facts should be ascertained through a public hearing.

Reeser Reviews Industry's Improved Statistical Position

New York.—Decline in crude oil stocks for the thirteenth consecutive month and record total withdrawals from storage of 16,000,000 barrels of crude oil and all petroleum products, as disclosed in the U. S. Bureau of Mines petroleum statement for August, were cited today by E. B. Reeser, president of the American Petroleum Institute, as indicative of the industry's improved statistical position.

The executive found added optimism in the fact that August was one of 19 of the past 22 months in which crude has been withdrawn from storage and that domestic demand for gasoline, the industry's money product, showed an increase of 5.86 per cent over August, 1930.

"The Bureau statement," said President Reeser, "shows

that 13,511,000 barrels of crude oil were withdrawn from stocks during August, 1931, as compared to withdrawals of only 3,274,000 barrels in August, 1930. Stocks of refined products fell off nearly 2,000,000 barrels, making total withdrawal from all stocks close to 16,000,000 barrels, the largest in one month in history.

"Withdrawals of crude oil from storage during the first eight months of 1931 have totaled 30,350,000 barrels as compared with 6,134,000 barrels in the corresponding period of 1930. On January 1, 1930, crude stocks amounted to 428,445,000 barrels, while on September 1, 1930, they totaled 422,311,000 barrels. On September 1, 1931, however, crude stocks amounted only to 378,326,000 barrels, representing a total decline of 50,119,000 barrels in 20 months.

"These figures may be taken to indicate that the statistical position of the industry vastly is improved, as reflecting efforts made by several oil-producing states, as well as by the industry itself, to remedy admitted ills. Of course, the shut down of Texas and Oklahoma oil fields under martial law necessitated use of storage oil, but to my mind the declaration of martial law itself was one cumulative effect of continued effort by oil producers and conservation authorities to achieve some degree of rational operation and promote the cause of conservation. Curtailment of drilling operations, another effect from the same cause, also has been beneficial. I am inclined to think a new day is dawning in the oil producing states and in the industry, and that never again will valuable petroleum resources be so recklessly exploited and wasted.

"The increase of 5.86 per cent in domestic demand for refinery gasoline during August was helpful to the industry. Export demand declined some 40.33 per cent as compared with August, 1930, but the decline in total demand, which includes domestic consumption and exports, was limited to 0.70 per cent, a virtually insignificant drop when the extensive recessions in business in general are taken into consideration."

General Subjects Predominate At Institute Annual Session

New York.—United States Secretary of Commerce Robert P. Lamont will be the guest speaker at the annual dinner of the American Petroleum Institute to be held in the Stevens hotel, Chicago, Wednesday evening, November 11. The annual meeting covers the period of November 10, 11 and 12.

The annual meeting, which formally opens Tuesday morning, November 10, will be given over largely to general and group sessions of the Institute's divisions of production, refining and marketing this year, much of the technical work done by committees having been completed at mid-year sessions of the divisions.

A general session will be held Tuesday afternoon, November 10. Speakers will be Oscar Sutro, Standard Oil Company of California, who will discuss "The Anti-trust Laws and the Natural Resource Industries;" Colonel J. Lewis Thompson, of Kilgore, Texas, whose subject will be "East Texas and East Texans," and E. B. Reeser, Barnsdall Oil Corporation, Tulsa, who as president of the Institute will deliver the "president's address."

The general session of the division of production will be held Wednesday afternoon, November 11, at which oil production problems will be considered from the standpoint of policies involved, engineering requirements and legal aspects.

The mornings of Wednesday, November 11, and Thursday, November 12, will be given over to group sessions of the three divisions. On Wednesday the division of production group will consider corrosion of oil field equipment. On Thursday the subject of the division of production group session will be drilling and production practice.

Although the program formally opens Tuesday, numerous committee meetings will be held Monday, November 9.

The program to be presented at the sessions of the division of production, follows:

Wednesday Morning, November 11

General topic: Corrosion of Oil Field Equipment.

"A. P. I. Pipe Coating Tests," Gordon N. Scott, research associate, U. S. Bureau of Standards.

"Corrosion of Production Equipment," Stanley Gill, The Gulf Companies.

"Relation of Pipe Line Currents and Soil Resistivity to Corrosion," C. R. Weidner, Prairie Pipe Line Company.

Wednesday Afternoon, November 11

General session.

Report of the Chairman of the Division of Production, Robert R. Penn.

The New Conception of Oil Production: "The Policies Involved," J. Edgar Pew, Sun Oil Company. "The Engineering View," John R. Suman, Humble Oil & Refining Company. "The Legal Aspects," W. P. Z. German, Skelly Oil Company.

"Agreement Between the Oil Producing States to Insure Uniformity in Conservation Law and Its Administration," C. B. Ames, The Texas Company.

Thursday Morning, November 12

General Topic: Drilling and Production Practice.

"Developments and Improvements in Drilling Practice and Equipment," J. R. Gignoux, Shell Oil Company of California, Chairman, Topical Committee on Drilling Practice.

"Improvements and Trends in Production Practice," W. W. Scott, Humble Oil & Refining Company, Chairman, Topical Committee on Production Practice.

Report of Division's Nominating Committee, O. D. Donnell, Ohio Oil Company, Chairman.

Election of Twenty Members of the General Committee of the Division of Production.

East Texas Initial for Week Sets New High Record for Area

Tyler, Texas.—A new peak for initial production in East Texas was established this week when 118 producers added 1,063,300 barrels of flush oil to the field's potential daily average. This represents an increase of more than 240,000 barrels over last week's initial production for the state.

One explanation for the big increase in initial production for East Texas is found in actions of operators there for four or five days previous to the date of effectiveness of the Texas Railroad Commission's recent decree that there should not be more than one well drilled on each 20 acres of ground. As soon as it was known that the decree would be made, there was an immediate noticeable increase in locations announced and spudded, a last minute move on the part of a number of operators to be restricted no more than they could help by the 20-acre ruling.

Estimate Shows 1931 World Output Less Than 1930

By VALETIN R. GARFIAS
Manager, Foreign Oil Department, Henry L. Doherty & Company

VALENTIN R. GARFIAS
Manager Foreign Oil Department, Henry L. Doherty & Company, New York

PRELIMINARY figures at present available indicate that the world's petroleum production in 1931 will aggregate close to 1,379,000,000 barrels, or about 39,000,000 less than in 1930 and 105,000,000 barrels under the peak production of 1929. The 1931 figures further show that the oil production in the western hemisphere, notwithstanding available over-supplies, will decline close to 69,000,000 barrels while the aggregate production of the Russian, Roumanian and Persian fields will increase about 32,000,000 barrels, it being interesting to note that the increase in production of Russia, Roumania and Persia will be equivalent to about 76 per cent of the decline in the United States, thus emphasizing the futility of trying to remedy world-wide conditions in any commodity by controlling but few of the sources of supply.

The outstanding development during the year has been the more effective steps taken in the United States and Venezuela towards the normalization of production resulting in an aggregate decline of over 60,000,000 barrels in the face of the largest potential production in the history of the American fields.

These conditions have served to focus the attention of the industry on the feasibility of remedial measures even under such serious handicaps as the inadequate legislation which burdens the American operator. The industry, furthermore, realizes more and more clearly that the oil reserves which are now being wantonly wasted will be sorely needed at some future time and that the American consumer will then have to rely for its needs more and more on higher priced foreign oil.

Definite steps have been taken during the year toward the building of the pipe line system connecting the Baba Gurgur field of Iraq near Kirkuk, to the Mediterranean seaboard at Acre near Haifa in Palestine and at Tripoli in Syria, it being planned to terminate this project, involving the building of over 1,000 miles of pipe line and intensive harbor improvements, sometime in 1935.

United States

The conservation of petroleum took a new impetus in 1931 which culminated in the proclamation of martial law in Oklahoma and Kansas as a means to avoid further waste. These measures have been only partially and temporarily successful, but it should be noted that notwithstanding the successful development of the extensive and very productive East Texas fields, the output in 1931 will be about 42,000,000 lower than in the previous year. This is the best proof that some very tangible results have been obtained in the conservation of the most valuable of our national fuels. In trying to cope with the fundamental causes of the over-production of oil, the necessity of uniform and adequate legislation becomes every day more apparent.

The United States consumed locally in 1931 about 44,000,000 barrels more than the American fields produced and the oil exports increased this deficit to 164,000,000, the oil imported to this country will aggregate close to 85,000,000 barrels thus reducing the adverse balance to 79,000,000 which represent the amount of oil that will be taken out of storage during the year.

Russia

It is estimated that the production of Russia will be close to 158,000,000 barrels showing an increase of 23,000,000

(*Continued on page 42*)

TABLE SHOWING THE WORLD PRODUCTION OF PETROLEUM
(In Thousands of Barrels)

	1929	1930	1931
United State ..	1,007,323	898,000	856,000
Russia	99,507	135,165	158,000
Venezuela	137,472	137,675	118,000
Roumania	34,689	41,680	48,000
Persia	42,145	45,420	47,000
Dutch E. Indies	38,072	40,150	39,000
Mexico	44,688	39,530	34,000
Colombia	20,385	20,346	18,000
Peru	13,422	12,458	11,500
Trinidad	8,716	9,120	10,000
Argentina . ..	9,391	8,910	10,000
India	8,366	8,280	8,000
Sarawak	5,279	5,830	5,000
Poland	4,988	4,840	4,400
Japan	2,010	1,950	2,000
Sakhalin	1,076	1,670	2,000
Ecuador	1,350	1,559	1,700
Egypt	1,864	1,910	1,800
Canada	1,121	1,500	1,700
Germany	711	1,161	1,200
Iraq	798	750	800
Others	668	819	900
Total	1,484,041	1,418,723	1,379,000

Production Equity and Control Feature A. I. M. E. Meeting

By H. J. STRUTH
Staff Economist

HOUSTON.—Engineers assembled here for the fall meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers voiced popular accord on the subject of controlled operation of oil producing properties. The initiative was taken on this subject by Earl Oliver, who presented his views in an impressive manner in a paper entitled "Stabilizing Influences of the Petroleum Industry." Mr. Oliver's paper is presented elsewhere in this issue. Mr. Oliver stressed the lack of adequate laws to protect the public interest against waste of petroleum and to insure a just distribution among collective oil-producing property owners. He advanced a fundamental consideration when he stated that what is needed in the petroleum industry today is the establishment of a relative acreage content to be used as a legal standard of each owner's right to extract oil and gas from a common pool, with appropriate protection given each owner in the enjoyment of his right.

The subject of determining the acreage content of oil pools was given considerable discussion. Agreement was practically unanimous with respect to the feasibility of determining the relative value of any proven oil producing pool. Discussion of this subject developed a number of important points that will necessarily enter into any universal adoption of unitization. Chief among them was the question of how to determine the relative acreage value of mixed ownership acreage in any oil pool. Proponents of the idea stated that it is possible to define the relative content of any oil pool through measurements of sand thicknesses and porosity of sand samples taken from test holes. In fact, it was pointed out that the per-acre oil content of a pool could be ascertained on a relative basis with a fair degree of accuracy. It was assumed, therefore, that unitization agreements among operators would develop a satisfactory standard of ownership rights for the extraction of a pro-rata share of the oil content of the pool. While some difference of opinion was developed in the discussion as to the ability of any group of operators to reach accord on the subject of who shall operate the unit and right of owners to extract their share of the oil on a basis that would satisfy all participants in the unit, it was apparent that the fundamental object of unitization would be realized if ways and means could be found to overcome existing legal obstacles to its adoption.

In line with thoughts advanced by Mr. Oliver concerning the need for a revision in existing state and national laws governing the operation of oil pools, was a statement made by W. S. Farish, president of Humble Oil & Refining Company, when he stated to the engineers assembled at the Friday evening smoker, "The principles advocated by engineers of the petroleum industry will probably some day receive recognition by legislative bodies that have allowed the oil industry to operate under the present form of legalized piracy." He said that the work done by petroleum engineers has proven the need for some plan of equitable extraction of oil from the common pool and urged that their work be carried on to its ultimate goal. Most of the engineers attending the meeting seemed to be in accord on the need for revision of state and national laws pertaining to economic operation of oil properties in the United States.

Lahee Reviews East Texas

An interesting resume of developments in the East Texas field was given by Dr. F. H. Lahee, Sun Oil Company, Dallas. His paper covered the history of events leading up to the development of East Texas and touched on geology, engineering work done and operating costs of development. Following are some of the pertinent remarks made by Dr. Lahee:

"The Joiner well was completed September 8, 1930, at a depth of 3592 feet. On December 18, three producers were completed. On December 28, the Bateman Crim 1 came in with a production of between 10,000 and 15,000 barrels a day, from a depth of 3650 feet. On January 25, 1931, Moncrief, Farrell et al completed Lathrop 1, seven miles east of Gladewater. The first well in Smith County —Cook 1—reached the top of the pay at a depth of 3672 feet.

"The East Texas pool is 36 miles long, from 3 to 7½ miles wide and has an area of 92,000 acres. From the period March 25 to September 10, an average of 73 wells were completed each week. In December, 1930, warnings were broadcast on the effect that might result from unrestrained drilling. We all know what happened through ignorance of some and the greed of others which resulted in the whole industry being swept to the brink of ruin. Martial law shut the field in for a period of 20 days.

Geology—"The west flank of the Sabine uplift regional dip is generally westward. Production is found between 3430 and 3800 feet, or between sub-sea depths of 3100 to 3150 feet on the east to 3315-3330 feet on the west. The formation wedges out to the east between the Austin chalk and the Georgetown. The eastern edge of the field coincides with the eastern boundary of the pool. With the exception of a possible low, flat closure a few miles east of Gladewater, there is no true reversal of the normal westward dip. Oil has been trapped in the up-dip part of the porous Woodbine sand which is overlain by impervious beds.

Water—"Oil is backed by water under hydrostatic head of 1560-1600 pounds per square inch. The water-oil contact ranges between 3315-3325 feet. Sand samples show considerable range in texture and in effective porosity. The flow of fluids

through the sand is less easy than through sands of coarser texture and larger pore spaces. A series of tests on samples from all parts of the field shows a large percentage of sand that passes through a 40-80 mesh. The per cent of porosity ranges from 26.5 to 31. The zone as a whole is relatively porous. It is not considered good practice to drill below a sub-sea depth of 3300 feet, which is 20 feet above the average water table. The oil is a paraffine base with an average gravity of 39.1, A. P. I. Variations in gravity range from 38 to 40.5 degrees, A. P. I. The color of East Texas oil is dark brown, especially in the western part of the field. It is somewhat more greenish farther to the east. Laboratory samples showed the following distillation results:

	Sample 1	Sample 2
Gasoline (56-57)	40.7	39.8
Kerosene (40-41)	1.1	1.5
Gas Oil	22.2	22.3
Lubricating Distillate	5.6	5.6
Residuum (19-20)	27.8	27.9
Fixed gases	1.0	1.0
Loss	1.6	1.9

Additional tests showed the following:

Wax content	2—2.5%
Sulphur	.25— .27
Pour point	45

"The pour point suggests that paraffine troubles may be expected in cold weather."

Gas—Gas-Oil Ratios—"The gas-oil ratio in East Texas is from 100 to 600 cubic feet per barrel of oil, with an average of about 325 cubic feet. The gas contains from 3½ to eight gallons of gasoline per thousand cubic feet. It has a low methane percentage and a high percentage of heavier gases. At zero pounds, analysis shows the following:

Methane	49%
Ethane	11
Propane	19
Isobutane	3
Butane	9
Pentane	8

"The gas is dissolved with oil and there is no accumulation of free gas in higher parts of the reservoir. Temperatures reported are as low as 89 and as high as 142 at the casing head. Temperatures of 150-160°F. are the average for oil and water in the pool before expansion of dissolved gases has produced cooling. This compares with maximum temperatures of 125 at Mexia, 128 at Wortham and 120 at Powell. The average reservoir pressure is from 1500 to 1600 pounds per square inch.

"Serious water encroachment can be expected unless systematic methods are followed in spacing and drilling and finishing and producing wells. On the basis of an average thickness of 30 feet of producing oil sand, over 92,000 acres with an average porosity of 25 per cent and an average extraction of 40 per cent, the productivity of the area should be about 775.84 barrels per acre foot or of 30x92,000x775.84 equals 2,141,300,000 barrels. This amounts to about 23,275 barrels per acre. An average recovery of 15,000 barrels per acre would amount to a total recovery of 1,380,000,000 barrels.

Drilling Costs—"Average cost of drilling in East Texas amounts to about $19,000, which includes derrick, casing, drilling and completing with flow connections. By adding $4000 for two 1000-barrel stock tanks, the total cost amounts to about $23,000 for a completed, flowing well. Fast drilling has resulted in many crooked holes, undoubtedly, as the average drilling time to the pay sand of 3500 feet has been about 10 days. In some cases 2500-foot holes have been drilled in three days. On January 8, 1931, the Joiner pool had two short lines of four inches diameter to a 10-car rack and a 17-car rack on theI-GN. railroad. On September 10, 1931, the outlet of the field by trunk lines, etc. was 1,000,000 barrels a day.

"The first chapter of the history of East Texas has been little short of pandemonium, but all the chagrin and distress will have been worthwhile provided a lesson has been learned that will lead to a better understanding of the problems of the industry and to concrete measures for equitable, scientific and legal impovement."

Bottom Hole Chokes

The use of bottom hole chokes and their advantages was discussed by J. S. Ross, Southern States Company, Shreveport, Louisiana. Mr. Ross pointed out that bottom hole choking through the development of removable types of chokes has been applied successfully under various conditions of flow in many Mid-Continent fields. He said that bottom hole choking has an important place in the operation of oil and gas wells and presented data obtained from tests in the Yates pool which showed that a 5/32-inch bottom hole choke produced the same amount of oil as a 3/16-inch surface bean. By placing a 3/16-inch surface bean in the bottom of the hole on the same well, production was 20 barrels a day greater than resulted from the use of a surface bean of the same diameter.

Hydrostatic pressure, according to Professor B. B. Boatright, of the Colorado School of Mines, Golden, Colorado, is seldom the only source of energy in oil sands, although it is often found that in conjunction with compressed gas increased production may be obtained where this condition prevails, provided water encroachment is properly controlled. Professor Boatright stated that gas-oil ratio gives a fairly accurate basis of comparing relative flow efficiencies in a given well, but cannot be applied quantitatively to flow-efficiency analysis of a pool unless reservoir pressures are also taken into consideration.

Making use of gas in reservoirs at various rates of flow through effective design of flow strings was described by M. Albertson, Shell Petroleum Corporation, Dallas, Texas. This paper showed that certain velocities of flow for the mixture of gas and liquid are more efficient that those materially greater or less. The author stated that velocities of from five to 20 feet per second have been shown to give far better efficiencies in lifting water than usually exists in oil wells. Indications are that tapered tubing in wells producing from sand formations will decrease gas ratios without diminishing the rate of recovery, according to the findings of Mr. Albertson. A summary of results obtained in the Yates field showed the following:

		Before Tubing		After Tubing		%
		Oil	Ratio	Oil	Cubic	Re-
	Wells	Per Day	Cu.Ft.	Per Day	Feet	duct'n
All wells	55	10,837	1,112	11,894	674	39
Tapered Tubing	18	5,570	1,225	6,091	610	50
Straight Tubing	55	5,267	990	5,803	742	25

In line with Mr. Albertson's paper was that presented by R. R. Hawkins, The Texas Company, Tulsa, Oklahoma, showing that properly designed tubing strings makes it possible to continue the flowing life of wells beyond the stage where they would ordinarily be put on the pump. He stated that wells no longer able to flow through two-inch tubing can be made to produce through smaller tubing, if conditions within the well are carefully studied and correctly designed strings are installed. Correct velocity control can be secured more efficiently through the use of small tapered strings of tubing than by any other method, according to Mr. Hawkins' personal observations.

A novel form of apparatus for duplicating conditions existing in oil reservoir rock, about high pressure producing wells in the field was presented in a paper prepared by L. C. Uren, of the University of California. Professor Uren constructed

(*Continued on page* 48)

EDITORIALS

These Changing Times

THOSE of us who are privileged to live in this age and generation are seeing and participating in a remarkable evolution—an evolution of ideas on private business and the public interest in it.

Some have gone so far as to say that it is a revolution we are witnessing in the United States—a bloodless revolution wherein ideas that have held sway for generations are being swept away.

"Socialism" is the charge hurled by some. "Communism is but the bastard child of socialism, and that will be the offspring to bedevil those of future generations" they say. "Paternalism and demagogy are the parents of socialism and the grandparents of communism."

It is enough to worry the man who has a sincere regard for his country. To some comes the inspiration to not give an inch, to fight to the last ditch for the old American ideal of personal freedom.

To the more conservative of the conservatists comes the realization that the evolution we are going through must have a basic cause. "Recognize that cause and work for a solution to the problem, rather than blindly fight against any change" is their counsel.

Our courts on many matters have hopelessly contradicted themselves. On others they show signs of interpreting public opinion, rather than the law; for which they cannot be greatly blamed because in the long run public opinion makes law—whether the law be a good one or not.

We believe that the clothes cut to fit any youngster will need changing as he grows older—and that an attempt to force him to wear garments long outgrown will result in rebellion. We believe that some of the changes we are seeing are changes that are necessary to prevent rebellion—and worse.

Let us recognize that all things change, ideas no less than material things, and, recognizing these changes, participate in them lest those with less balance over-do matters.

The oil industry right now is suffering from the grip of an idea that was first established when the oil industry, a sturdy riotous youngster, first put on his swaddling clothes—when the law of might was the law of the oil industry and equity was something to be written about in the gloomy books of the philosophers—and not a breathing part of the new industry's being.

Oil belonged to him who could first get it out of the ground, regardless of whether or not it was drained from the property of another.

He who could wrest it first had it, even though, under equitable development, his share would have been much less. The theory was legalized—and is legalized at this time in some states.

Probably it had its origin in the fact that when the petroleum industry was younger, there was no way to determine the prospective production of a property or a field.

But those times have changed.

Even the court decisions in states where the "wild horse" theory is held as the law of the land, have also rendered decisions on drainage damage cases that have been contrary to the general conception of the law.

Is it right for a man to get every barrel of oil possible from beneath ground through his wells, even though he draws it from his neighbors' properties? Is it fair—is it equitable?

Whether it is or not, the general conception on the part of the industry — a lessening idea by the way—has stood in the way of conservative development—has lent its weight to making the oil industry the most irresponsible industry in America.

At the meeting of the American Institute of Mining and Metallurgical Engineers, Petroleum Division, held in Houston last week we found that the engineers were studying this problem with genuine interest. The idea that the equitable thing is for each property owner to have his fair share and no more intrigues them because the opposite to it doubles their burdens in handling the situation which has been thrust on them and the other leaders of the industry.

Elsewhere in this issue of The Oil Weekly we are publishing a paper by Earl Oliver dealing with this question before the engineers. His paper has been armed with opinions of men who stand well with the industry. Some of these opinions have appeared in print before—most of them for the first time are being presented publicly.

This is not a question for the oil industry to dismiss with a shrug. It is a question that will become more and more important—a question that we predict will be up before the council of the mighty before the year closes.

Read the paper and the comments.

The Oil Weekly has often offered its colmuns for discussion of matters of interest to the oil industry. If offers them again for a discussion of this most important problem—a problem which the ever changing age has thrust upon us with renewed force.

Stabilizing Influences for the Petroleum Industry

By EARL OLIVER*
Chairman A. I. M. E. Committee on Unit Operation

THIS paper is based on the formula that the petroleum industry is sick—find the cause, eliminate it, and the industry will get well. There is perhaps no difference of opinion that the cause is over-production, actual or potential. But that, again, is a result rather than a cause. The problem is to study those influences that serve to keep production and consumption out of balance.

Production control is a popular theme and a natural one at this time when the whole world is unstable; but production control in its popular sense means little more than the application of emergency measures while danger threatens. Economists differ as to the effectiveness of these, most of which are designed to alleviate and not to cure, but we assume there is none who questions the wisdom of promoting conditions under which economic forces are permitted to operate freely in bringing about stable conditions.

The petroleum industry suffers from two classes of economic ills that serve to promote over-production, namely: those which are common to all industries and those which are peculiar alone to this industry. It is of the latter I wish to speak. Strange to say, government is responsible in large part for this latter class of ills that affect the petroleum industry and we are coming to recognize that only through the assistance of government can they be corrected.

Instability of the petroleum industry, insofar as human agency was involved, had its inception back in 1875 when a Pennsylvania jurist, called upon to make a decision for which there was no precedent and fancying he noted some resemblance between the so-called fugitive nature of oil and gas and that of wild game, made mention of that resemblance. Other courts being impressed by the analogy enlarged upon it, and gradually fixed upon oil and gas a legal status in certain important respects similar to that of wild game. While the courts later abandoned this analogy yet certain practices that developed out of that early concept have continued to this day and are largely responsible for the industry's present plight. Thus, instead of ownership in place that is characteristic of private property generally, the law of capture was applied to oil and gas.

Now, the rapid and wasteful depletion of game in every country as population becomes dense—until adequate game laws are enacted—is so well known as to need little discussion. We know how fish, deer, bear, and buffalo have disappeared except where they were protected. We know their utter annihilation would have occurred except that government stepped in and laid down minute directions, setting forth the manner, time, and quantity under which the few remaining in each case might be appropriated. It even specified the uses to which the number appropriated might be put. These minute directions of government were sufferable only in that they applied to things not of great importance to the welfare of the citizen. They would, however, not be sufferable if applied to a great industry.

Ruthless Methods Employed

As stated, the courts fixed upon oil and gas a legal status somewhat similar to that of wild game; but legislators found themselves unequal to the task of formulating adequate game laws. As a consequence there were applied to the nation's supply of oil and gas the same ruthless methods of capture that characterize the taking of wild game where no game laws exist. There were no rules to determine how much each owner was entitled to extract. The only standard set upon him was that his proportion of the reservoir content should be taken out of the reservoir through wells drilled on his own land; which, again, is contrary to engineering principles for the reason that his land might be so located on the structure as to make extraction at that point exceedingly wasteful. To secure his share each owner was compelled to enter a race involving competitive extraction, bringing that which he could to the surface at once irrespective of market demand. The rate of extraction of the nation's petroleum reserves depended upon the rate of discovery of new pools, not upon market demand. For many years pools were not discovered more rapidly than consumption could be speeded up to consume the output; but finally the cumulative result of scientific efforts outstripped consumption and developed a potential that must be curtailed in some other manner than is possible under competitive drainage.

One need be no profound student of political economy to understand that permanence and preservation of the material things of life that we constantly see about us and that are collectively known as property are vitally dependent upon the character of laws under which ownership is determined. If the law of ownership to a material thing is certain, positive and permanent, the individual who owns it will protect it, conserve it, and utilize it to its maximum capacity knowing that in the meantime delay on his part will not deprive him of such enjoyment when and however he may deem most desirable. Such certainty means the most complete and efficient utilization by him, which happily is likewise most beneficial to society generally. On the other hand, if his character of ownership is such that it imposes upon him great burdens to maintain, and finally complete uncertainty as to whether or not he shall enjoy it at all, this uncertainty and burden become a pressure upon him to utilize it immediately and secure what enjoyment may come to him out of it, irrespective as to whether or not that enjoyment is small in comparison with what it might be if he could afford to delay enjoyment. He utilizes it immedi-

*Address delivered October 3, 1931, at Houston, Texas, at fall meeting of A. I. M. E., petroleum division.

ately and inefficiently. Unfortunately inefficient utilization on his part results in a like loss to society in general.

The recognition of these principles occurred so long ago their inception is lost in antiquity. We can only theorize that their recognition is the foundation on which the institution known to us as private property is based. Otherwise we find it difficult to explain the sacredness with which that institution is regarded, and its remaining so little changed through the ages. But any theory we may entertain as to its origin is not so conclusive as our daily observation of its operations.

An Abortive Principle

This principle of oil and gas law, conceived in 1875, was, then, an abortive one. It violated centuries of experience as to the type of ownership to property that best serves mankind. It conflicted with economic law. It prevented operation of the law of demand and supply. It put a premium upon wastefulness rather than efficiency. It did not harmonize with existing institutions. It did not utilize the predominating traits of human nature without which no law can be economically successful. However for a time it persisted. Out of it grew practices, usages and customs of the industry. Finally courts began to recognize its inconsistency and there is now a growing tendency to break away from it.

It is obvious that in many of the early court decisions there was a complete lack of recognition of any factors peculiar to oil pools that are of common and vital interest to all operators in the pool and to the public at large. This is no longer true as it is now clearly recognized by the industry and even implied in a recent court decision that the energy factor is common to all interested parties including the public at large. It is not the purpose of this paper to discuss this aspect of the problem further than to point out that much of our existing oil and gas law is not only obsolete but runs counter to well established engineering principles.

The Supreme Court of Arkansas in Bodcaw Lumber Company versus Goode, 254 S.W. 545, stated the present tendency to be: "According to many writers on this subject the view most generally entertained by geologists at present is that gas and oil are not of a vagrant character and do not migrate, but maintain their situs until they are drawn out or expel themselves by pressure through artificial openings in the surface, and that tendency of later decisions is to hold that oil and gas while in place and before being drawn out by artificial openings are as much a part of the realty as fixed minerals such as coal or iron." However the changed attitude of courts has not yet made itself generally felt in the practices of the industry, nor in fact has it been carried to its logical conclusion by the courts themselves. If full force were given to the principle that ownership exists to oil and gas in place it follows courts and legislatures would do those things necessary to protect the owner in a reasonable enjoyment of that which he owns —which of necessity would include protection against their appropriation by others.

Lawyers have advised our committee: "Oil and gas in place are either owned: (1) in common, as is held in Oklahoma and certain other states, or (2) belong to the person under whose lands they lie, in harmony with the decisions of Texas and other courts. If they are owned in common, as in Oklahoma, one operator should not be permitted to take more than his reasonable share of the oil and gas from the common pool, or to operate by methods which waste or dissipate the natural forces necessary to produce them thereby preventing the maximum recovery of the common resources. If such minerals are owned in place, as in Texas, each owner has title to the oil and gas under his land and it is apparent that one owner should not be permitted to take that which belongs to his neighbors, or to do that which injures his neighbors' property or prevents his neighbors from recovering the maximum amounts from under their lands."

Texas Status Uncertain

The courts of Texas, however, have not yet developed a clear line of action fully protecting the ownership set forth, although the case of Oxford Oil Company et al versus Atlantic Oil Producing Company strongly suggests their readiness to do that if a suitable opportunity develops. Progress in this direction will depend upon the extent to which petroleum engineers devise practical methods of development in harmony with ownership in place. "It is the function of the engineer to outline methods under which oil fields should be developed and of the lawyer to find how that can be legally accomplished."

It is clear that the identical oil and gas in place under the land of any owner would be difficult to determine; but there is a well recognized body of law governing the confusion of goods. The courts do not refuse justice merely because they cannot give each man his particular ear of corn, bale of cotton, or bushel of potatoes. Instead they do those things necessary to give substantial justice—and courts have wide discretion as to what means shall be used to bring about that end. They have no means of determining whether the oil that comes out through "A's" wells was originally located under "A's" land but they do know whether the manner of development followed by "A" is such as a reasonable man would use if he were not also attempting to extract oil and gas from under the land of "B."

Certain practices and usages of the industry growing out of this early Pennsylvania line of decisions remain as an aftergrowth that is difficult to break through. Men have experienced them so long they now claim them as vested rights notwithstanding they are entirely inconsistent with underlying principles regarding the use and enjoyment of property that have persisted for ages, and which are in fact the basic principles on which organized society is founded. These errors die hard. They have been maintained as a continuity of policy. They have been defended by bold and baseless assertions, but they now give promise of becoming the subject of legislative compromise and no doubt they will eventually be swept away and repudiated. Obviously the wisdom of 1875 is become the folly of this generation.

Destruction Cannot Continue

Surely destruction of natural resources like that which took place in the Oklahoma City pool and which is now taking place in East Texas will not long be permitted now that its extent and influence are becoming so generally realized. Legislators have authority to devise laws under which these products may be extracted efficiently and orderly for the benefit of society and will do so when engineers are in agreement as to methods. In the absence of such laws public sentiment has supported the chief executive in the application of martial law to stop the destruction, but no executive should be forced to use that method.

The oil industry is unstable. It is wasteful. But these admissions should cause it no embarrassment unless, of course, it refuses to help free itself of those characteristics. The practices it employs are the natural consequence of the type of ownership government foisted upon it. The personnel of government responsible for these practices has long passed away and it is but fitting their successors of this day, federal and state, through courts and legislatures should endeavor to remedy the errors of their predecessors. In fact the aftergrowths of these errors cannot be broken through without the cooperation of government and industry.

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authority of state legislatures to define the rule of ownership in harmony with developing scientific knowledge. They assert that the state, under its police power, has the authority to regulate and prescribe methods for the extraction of oil and gas from a common pool on either of two bases: 1) To protect the public interest against waste of the products. (2) To insure a just distribution among the collective owners. They state that if engineers can devise methods of determining the relative acreage content of each landowner in a common pool within reasonable bounds, not at all with mathematical accuracy, then that it would seem to follow clearly from certain court decisions cited by them that the state has the power to substitute acreage content as the standard of each owner's rights in a common pool for the old standard that still persists to some extent in oil field practice that he may extract from a common pool all the oil and gas he can draw out through wells drilled on his own land.

A Long Step Forward

If this acreage content standard is definitely substituted for the old one of unregulated capture a long step forward will be made toward stabilizing the petroleum industry. Competitive drainage in its virulent form will at once disappear. In proration, methods analogous to those in the Yates pool will be adopted as contrasted with those now in vogue at Oklahoma City or in East Texas. Acreage potential would be substituted for well potential. This can be accomplished within reasonable bounds through the simple expedient of determining in each pool what is a suitable number of acres to support each well. If any owner desires to drill more he should be permitted to do so upon the condition his allowable production for the acreage unit would be based on the average potential of his several wells. If an owner has less acreage than the recognized unit, his percentage of potential should be reduced accordingly. This would at once remove in a simple manner the economic burden of drilling many wells close together where a few would suffice. It would induce owners of small lots to join with others. It would eliminate the chief objection to proration, namely; that the operating cost per barrel is increased through the low allowable per well. It would put proration on a sound and fair basis.

While it would thus help to establish proration on a sound basis in those pools where proration is applied, it would also serve as a most effective step toward promoting unit operation in those pools where that method is found desirable. Lawyers have also advised if engineers can evolve practical methods of determining relative acreage content within the standard previously set forth, namely; within reasonable bounds, not with mathematical accuracy, that it seems to follow clearly from certain decisions of the United States Supreme Court and several state courts that the state has the power to require unit operation of oil pools where that method would be reasonable and practicable.

Following receipt of that opinion we addressed letters to a considerable number of engineers of recognized standing throughout the land making enquiry whether in their opinion engineers could evolve practical methods of determining relative acreage content within the limits set out in the legal opinion mentioned, and if so by what procedure. With few exceptions replies were in the affirmative, and development steps were indicated by which that determination might be made. Naturally, any such procedure would involve an extensive exploratory program to secure information as to the extent of the pool, thickness, porosity and content of the producing horizon, etc., etc. before commercial exploitation is extensively developed other than to repay cost of the exploratory program. But if that were a vital part of the unitization program advantages coming out of its adoption would more than offset the necessary delay occasioned in testing out the pool to secure information. In fact delay in turning floods of oil on the market after a pool is discovered is not one of the ills that beset the industry.

Readjustment Suggested

Several replies contained the suggestion that some means of readjustment at later periods should be provided similar to that of the Van pool arrangement. Copies of the replies received are attached to this paper. The general sentiment of those consulted was fairly well summed up by Joseph E. Pogue who stated: "I think engineers know how to determine relative acreage content within the limits set forth in the legal opinion; but if they do not already know, then they must learn how to do it."

If relative acreage content be established as the legal standard of each owner's right to extract oil and gas from a common pool, and appropriate protection be given each owner in the enjoyment of his right, then one of the greatest obstacles that now exists to the general adoption of unit operation will disappear. The first act of the discoverer of a new pool, or in fact of the owner of any new well would be, not to start a competitive drainage race, but to develop information to determine how much oil and gas he is entitled to withdraw. His greatest incentive to hasty development would be done. He would proceed with the knowledge that his taking would be limited to a quantity subject to determination and to certain regard for expulsive forces so that his neighbors' ability to extract might not be lessened; that failure on his part to observe these limitations would subject him to restraining order or damage suit on the part of those injured. He would no more attempt to take the neighbors' share of oil than he now attempts to take the neighbors' share of coal or timber, and for the same reason. His own interest would be best served by joining with that neighbor in determining the quantity and devising methods.

Decisions on matters of common interest should be determined by the collective voice of the owners in the pool, not by the individual. In no relationship in society except the development of an oil pool is the claim made that the individual should be permitted to carry on his business completely free from obligation to his neighbor regardless of the extent to which that neighbor might be detrimentally affected. The spirit of democracy is that where common welfare is at stake the voice of the majority shall control.

Any satisfactory development program sponsored by the state must include provision whereby the owners in the pool, collectively, shall set up their own machinery and determine, collectively, the policies to be pursued in that pool. In every collective activity sponsored by government, like the formation of drainage districts or the improvement of communities, this principle prevails. We see no reason why there should be an exception in the development of an oil pool where the actions of one so vitally and directly affect the interests of all others entitled to extract from the same pool.

On the other hand if the state provides machinery whereby the owners collectively in any pool can determine development methods and by majority voice require all in that pool to conform, it follows also that the state is obligated to protect from injustice each minority owner thus compelled to conform. For that reason under any method of cooperative development sponsored by the state the minority owner may be assured that he will have protection against unfair assumption of power by the majority to a degree that is not always accorded him by the ordinary corporation of which he chances to be stockholder.

If acreage content becomes the standard by which each

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owner shall share in the contents of a common reservoir and a satisfactory means of determining that is found, then it follows that each owner's proportion can be delivered to him from wells drilled at any point on the structure consistent with efficient extraction, regardless of whether or not the wells are on that owner's land. Thus expulsive forces of the reservoir can be efficiently used.

A Common Reservoir

Unit operation under this principle need not be consolidation of ownership—it need only be consolidation of operations. Under the principle described each owner's product would be located in the common reservoir in quantity subject to determination. Wells drilled into that reservoir are merely means of transportation by which the owner's product is brought to the surface and delivered to him by an agency of which he is an integral part. There is no more reason why he should necessarily have a separate well to bring his oil and gas from the reservoir to the surface than that he should have a separate pipe line or railroad to take his product the additional distance to market.

Adoption of this principle of acreage content would also simplify the growing problem of dealing with the increasing multitude of royalty owners that comes through the recently adopted practice of subdividing royalties. The owner of a minute royalty interest would merely have this proportion of the content of the common pool delivered to him in like manner as others in that pool and would be subject to majority action to a like degree with all other participants.

On the other hand the small participant, either royalty owner or operator, will enjoy many advantages from unit operation based on this principle that he cannot enjoy under the competitive drainage system of development. He will be certain to receive the oil and gas content of his land regardless of whether or not that land be drilled. If he be a royalty owner he will receive his share of the oil and gas free from any charge. If he be the owner of a working interest he will receive his oil and gas subject to its proportion of the cost of development and operation, which would ordinarily be less per barrel than if a well were drilled on each small piece. It will bring to both of them a greater yield per acre through effective control of expulsive forces than they are entitled to and may reasonably expect under controlled competitive drainage as it will inevitably develop. No system can continue permanently that permits one owner to secure enough acreage on which to locate a rig and withdraw from the common pool as much oil as that to which the owner of 40 acres is entitled. It would thus enable the small operator to participate in the results of development without large capital expenditure on his part.

Under a proper system of unit operation forms of assignment will evolve whereby each individual owner readily disposes of his share of the oil and gas in the reservoir, after the same is determined, without bringing it to the surface. Thus unit operation would provide a most ready means of quick return to the one who wishes to turn his oil and gas into money without delay.

Adjustments Simplified

On the other hand it would afford means whereby those who wish to utilize their oil and gas according to certain fixed schedules suited to their own pipe line, refinery and marketing facilities to designate their needs and have the same supplied according to that schedule much more readily than adjustments can be made under the competitive drainage system. It would enable each participant to designate his requirements months ahead and the same could be withdrawn to suit his convenience independent of the withdrawal of other owners in like manner as depositors in banks are permitted to withdraw their funds to suit their own peculiar needs.

This arrangement of course would require the maintenance of certain margins of safety so that each participant would not overdraw his share, but within that limit freedom of withdrawals and freedom of sales could be made to an extent that is not now possible under competitive drainage. Those in need of money could sell their oil in the ground for future delivery with a minimum of danger to the market structure and on the other hand those who desire reserves of oil and gas could accumulate them with the assurance that they would remain in the reservoir free from deterioration or storage costs until needed. Instead of the transient hysteria that now attends the discovery of a new pool, permanent communities would be built up in which industries would be developed to consume the cheap gas fuel now blown into the air. Labor would be benefited and social conditions improved. All these and many other advantages would accrue from unit operation which would be made comparatively easy if the standard of acreage content were substituted for the present unregulated capture system.

Comments of Engineers on Oliver Proposal for Unit Operation

Joseph Jensen, Petroleum Engineer, Associated Oil Company, Los Angeles

"Referring to your circular letter of June 6 with sheet of quotations attached, I am inclined to agree with Mr. Umpleby in saying "a plan of prospecting and determination might be evolved whereby a reasonably close estimate of the relative quantities of oil and gas underlying adjacent tracts in a common pool might be determined."

"The haphazard development of an oil field that results because of diversified ownership, compelling competitive drilling, stands out so markedly in contrast with the more sober-minded method adopted by operators on large tracts of land where such problems exist as to indicate that the money thus spent under the old system would more than pay for an intelligent prospecting campaign. While it is perfectly true that the prospecting campaign would call for a large initial outlay, which unit development would seek to avoid, it is also true that the growing appreciation of the importance of a controlled gas-oil ratio will, in the future development of oil pools, require that production from a completed well be limited to that part of its life during which the gas-oil ratio remains low. The thicker the oil zones or the greater number of sands involved, the more difficult the problem would be. Undoubtedly, some method of retroactive adjustment would have to be set up.

"In the formation of the Kettleman Hills North Dome unit plan, this retroactive adjustment appeared so insurmountable because of the changing prices of oil, gas and gasoline that participation on an equal acreage basis was substituted. This is much simpler. The gamble involved among the operators, who enter the project more or less blindly as to the true value of their land, is perhaps not much greater than the difference in adjustment that results by putting all on an equal acreage basis. All oil fields are not uniform in character and the

(*Continued on page* 43)

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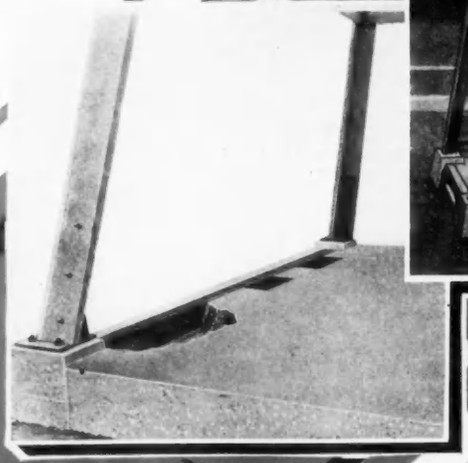

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Advantages of Flowing Wells Through Tubing*

By HALLAN N. MARSH[1] and BRUCE H. ROBINSON[2]
Los Angeles, California

IT is generally believed that the flowing of wells through tubing instead of casing results in the conservation of gas. It is further believed that use of tubing prolongs the flowing life of a well and results in greater ultimate recovery, provided either that there are no adjacent wells, or that any adjacent wells are similarly operated. Recent experience in the flowing of Buckbee zone wells at Santa Fe Springs has not only substantiated both of these beliefs but has led to the further conclusion that the use of tubing results in a greater cumulative flowing production, even in a highly competitive field like Santa Fe Springs, where the wells concerned are closely offset by wells of both the same and other companies flowing through casing. Further, gas-oil ratio has been so reduced that greater ultimate recovery can be expected.

In the belief that such would be the case, the majority of the Buckbee zone wells of one company were brought in through tubing. However, enough wells were flowed through casing to form the basis for a comparison. For the purpose of this comparison, wells with flow strings, 2½ or three inches in diameter are designated as tubed wells, while those having flow strings larger than three inches in diameter are designated as untubed wells. Casing used was mostly of 5¾ inches diameters, the remainder being of 4¾ inches diameter. There were 15 tubed wells and eight untubed wells and they were scattered over the field in such a way that neither group appears to have any distinct advantage as regards location. Locations of all wells involved in the comparison are shown by the map. All the Buckbee sand wells of the company are included in the average production curves, with the exception of eight that were unsatisfactory for reasons other than the method of flowing.

Findings

1. Buckbee sand wells flowing through casing larger than three inches had an average maximum production rate of 4670 barrels per day, while wells flowed through straight tubing or three-inch casing had an average maximum production of only 3300 barrels per day.

2. The production of untubed wells declined so much faster than tubed wells that at the end of 40 days the average production for both classes was the same, 1600 barrels per day.

3. At the end of 176 days all untubed wells were dead or upon compressor while eight of the tubed wells were still flowing naturally.

4. The original untubed wells are now all dead or on gas-lift and had an average cumulative flowing production of 178,000 barrels each. At the time the original 15 tubed wells had reached an average cumulative production of 178,000 barrels, their average production rate was still 400 barrels per day, and their indicated cumulative flowing production was 230,000 barrels each.

5. The greater cumulative flowing production for tubed wells was secured in spite of the proximity of other wells (some of which flowed through casing) and the fact that the average date of completion of the tubed wells happened to be 29 days later than for untubed wells.

6. The average initial gas-oil ratio for untubed wells was 1450 cubic feet per barrel while that for tubed wells was only 1000 cubic feet per barrel. Moreover, the ratio for the untubed wells climbed more rapidly than the ratio for the tubed wells, so that at the end of 110 days the ratio for the untubed wells was 5100 cubic feet per barrel while that for the tubed wells was 3600 cubic feet per barrel.

7. During the later flowing life the ratio for the untubed wells fell rapidly, so that the wells soon died or were put on gas-lift because the gas had been depleted during their earlier life. In the meantime the tubed wells retained a moderate ratio and were thus able to continue flowing.

8. The early dissipation of gas and subsequent drop in ratio for untubed wells is even more striking when plotted against cumulative production.

Discussion of Data

The data show that the use of tubing increases the cumulative flowing production of a well even under highly competitive conditions, and despite the fact that some offset wells were flowed through casing. The use of tubing further results in a substantial conservation of gas, or lowered gas-oil ratio during the early life of a well. This is believed to be the cause of longer sustained production and indicates that the use of tubing will increase not only the flowing production, but the ultimate recovery as well.

The use of tubing has a further very desirable effect from an economic standpoint, in that it not only secures a greater flowing production but does it with a lower maximum rate of production, and thus reduces the tankage and pipe line facilities required and renders less severe the flooding of the market that occurs when a new field is developed. This applies not only to oil but to gas. For economic reasons it has been considered impracticable in the past even to extract the gasoline from all gas produced during the flush period in the life of a field, but if the same total amount of gas can be produced with a lower peak rate of production, the amount of gasoline recovered can be increased. Similarly, it has been considered economically impracticable to provide sufficient pipe line capacity so that all dry gas can be delivered from a field to the consumer during the peak production; but a reduction of the peak will correspondingly reduce the investment for gasoline and compressors required to conserve the gas.

The use of tubing has been suggested as a basis for production curtailment programs. This suggestion has several things to recommend it. Most important, it gives indication of leading to a greater ultimate recovery. Furthermore, it appears equitable and easy to apply. A requirement of the use of tubing of a stipulated size is definite and permanent, a bean of a certain size is neither definite nor permanent, because beans of the same size may have radically different capacities; and on account of the cutting action of sand, beans are apt to gradually increase in size.

*Presented at the fall meeting of the petroleum division, American Institute of Mining and Metallurgical Engineers, held at Houston, Texas, October 2 and 3, 1931, which is the date of release for publication. Subject to authors' revision.

[1]Production engineer, General Petroleum Corporation of California.
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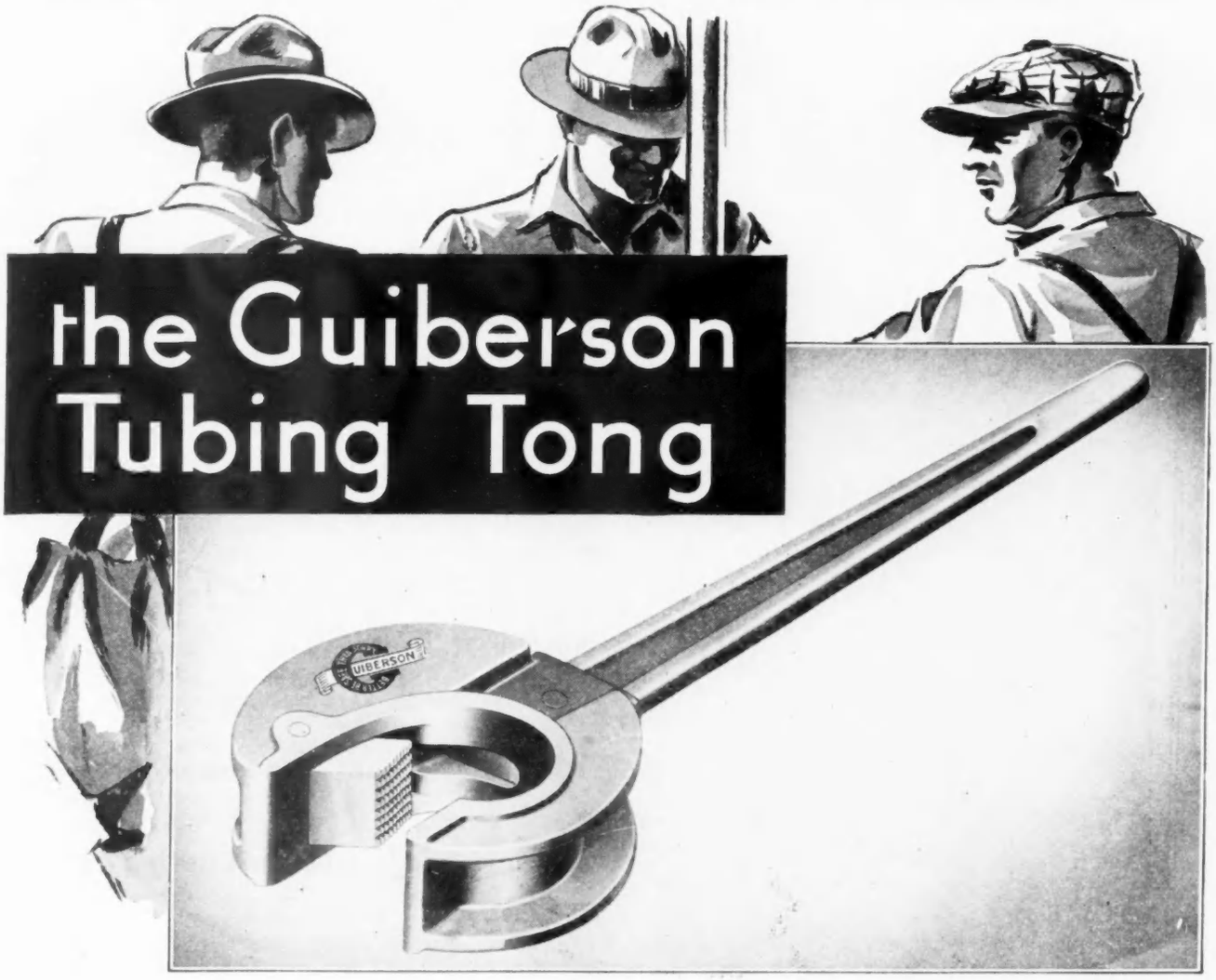
"CERTAINLY HAS A FIRM HOLD ON THE SITUATION"



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Correct and Incorrect Drilling Practices in East Texas

Report of the Southwest Drilling Practice Committee of the A. P. I. Production Division, Lufkin Meeting

By C. W. ALCORN
Chairman of the Committee

IN every oil field in the world thus far developed certain practices have been followed in drilling that can be classified as bad and other practices have been followed that can be classified as good. The mammoth oil field located in the counties of Rusk, Gregg, Upshur, and Smith, in the eastern part of the State of Texas, commonly known as the East Texas field, is no exception. The same situation will probably exist in most fields of the future so long as different organizations are interested in the development work with the usual individuality of procedure and resultant differences in practice. It is fully realized that the branding of certain practices in drilling and completing wells as "good" or "bad" is often a matter of opinion, therefore it is not expected that the good and bad practices defined herein should be accepted as the last word and testament for East Texas. This paper, however, does represent the observation of many operators in the field and so can be accepted as a fairly correct resume of the drilling and completing practices followed in the East Texas field. Under normal conditions the use of some classes of second hand equipment should properly be considered as bad practice, but the fact is recognized that the present price of oil and business conditions generally may render the use of such equipment necessary and advisable at the present time.

Derricks

If wood derricks are used they should be built in accordance with A. P. I. specifications and only thoroughly seasoned lumber should be used in their construction.

Green lumber will suffer severe shrinkage, greatly reducing the strength and increasing the liability of accidents. Girts may pull loose and fall on well fittings or workmen. It is for the purpose of economy that wood derricks were built, but care should be taken that they are of good material and are erected properly. Wood derricks present a fire hazard principally because of liability of blowing over and breaking well head fittings.

If steel derricks are used, they should be built in accordance with A. P. I. specifications.

Many steel derricks built to regular A. P. I. dimensions are now in use in East Texas, but it is doubtful if all will meet all the stipulations in the A. P. I. specifications.

Boilers

Purchase boilers to A. P. I. specifications and follow the A. P. I. recommendations on the care and use of oil field boilers.

The Institute has published recommendations on setting boilers, firing up, cleaning, etc., which are available in poster form, convenient for tacking on boiler house walls, in bunk houses, tool houses, etc.

Boilers should be set at least 150 *feet from the well being drilled and should never be set down the prevailing wind from the boiler.*

Setting the boiler closer than 150 feet, or setting it to windward of the well, increases the chances of the well catching fire from its own boilers during completion or in the case of a sudden oil and gas blow-out.

Old boilers should be given a thorough inspection by a competent boiler maker before being put in service.

If the boiler feedwater contains scale-forming chemicals, the water should be filtered, or treated and filtered.

Boilers have been burned or have blown up because of mud or heavy scale deposits caused by poor water. This is a serious hazard in a boom oil field. Proper treatment of the water before it enters the boiler will prevent the formation of scale and the deposition of mud.

Boilers should never be operated with safety valves that are in poor condition

At least one boiler blew up in this field due to a faulty relief valve which failed to "pop" at the set pressure, thereby permitting the steam pressure to exceed the safe working pressure of the boiler. Relief valves on all boilers, and especially high pressure boilers, should be inspected systematically and regularly and manually popped at regular intervals to determine that they will work at their set pressures.

Equipment

Only first class drilling machinery, boilers and drill pipe should be used. All equipment and fittings wherever possible should be built to A. P. I. specifications. Used equipment and machinery should be thoroughly inspected and necessary repairs made before using.

After equipment has been used for a considerable length of time it is admittedly hazardous as its actual strength is often highly questionable.

The interchangeability of standard A. P. I. parts can save much money in drilling operations.

Drilling Methods

Two mud pumps should be used on each drilling well.

The use of only one mud pump on a drilling well may be satisfactory in the majority of cases in East Texas drilling, but it is not good practice because quite often a pump goes down when its services are most required. For example, if the pump breaks down when drilling in heaving formations, the drill pipe may stick; also if the pump goes down when completing the well, the well may get out of control and blow out. Some operators use only one mud pump in order to reduce expenses, but many contractors and oil producing companies in East Texas

use two mud pumps because this saves time and may prevent trouble. While two pumps are often used simultaneously, it is good practice, whenever one pump is shut down, to inspect it carefully and make any needed repairs in order that it may be available for standby purposes.

It is bad practice to run casing without a suitable float shoe or float collar.

The use of a float shoe or float collar relieves the strain on the casing and on the hoisting equipment and may prevent damage to the equipment and to the casing.

Old style elevators should not be used in running second-hand casing. It is good practice to use slip elevators and quick-action slip spiders.

The slip in the spider is allowed to ride until all the weight is on the last collar in a strained position, thereby assuring that the joint will hold the weight of the string.

Drilling mud should weigh between 9½ and 10 pounds per gallon; do not use muddy water for circulating while drilling.

While the use of a mud of too light weight may not prove disastrous, it can easily do so by allowing the hole to cave in; cavities may be left which cause the drill pipe to wobble off the vertical; these cavities may also take up most of the cement, thereby leaving the casing without sufficient protection against collapse, especially when old casing is run. The use of improper mud can easily cause crooked holes.

East Texas formations furnish good mud for walling up the hole and proper care is being shown in most cases. Mud weighing 9½ to 10 pounds per gallon will overcome the formation pressure of any well in East Texas and will practically insure a good hole and a straight hole.

The heaviest mud obtainable from East Texas formation should be used when drilling wells into the sand.

It is poor practice to drill wells into the sand without using the heaviest mud obtainable from East Texas formations. Proper mud can be secured for drilling purposes if the drilling crews use ordinary care in saving surplus smooth mud.

Adequate slush pits and reserve pits should be provided and extreme care should be taken to prevent the escape of muddy water or drilling mud into the creeks.

Inadequate reserve pits and careless crews may not only waste good mud which is necessary for drilling in and keeping the hole in shape, but may also cause stream pollution.

Disposal of excess surplus mud through the natural drainage channels should absolutely not be permitted and is expressly forbidden by law.

Adequate slush pits and reserve pits are usually provided in East Texas, and extreme care is usually taken to prevent the escape of muddy water and drilling mud to the creeks.

Adequate precautions should be taken to prevent crooked holes.

In a field where the wells are 3600 feet deep and the producing horizon is as well known as the Woodbine sand, it is almost inconceivable that so many operators would wilfully neglect to obtain straight holes. At least 50 per cent of the oil produced in the East Texas field will be pumped in some manner, and crooked holes will increase the lifting cost enormously. The average over-all development time between a straight hole and a crooked hole will not exceed 48 hours in favor of the crooked hole.

The permissible deviation of well bores from the vertical should be limited to definite figures.

Many operators in East Texas drill their own wells not to exceed five degrees from vertical and require their contractors to do the same thing. Some operators require their contractors to drill their holes with deflection from vertical of not more than 2½ degrees. There are many well known methods and devices on the market by which the straightness of the hole can be determined.

The general use of fish-tail bits at all depths without regard to formations is bad practice.

Fish-tail bits are satisfactory when used in certain formations. Some operators use them satisfactorily in East Texas at depths between 1800 and 2400 feet where the formations are especially sticky. In other formations a bit which more completely fills the hole with four or more cutting edges is more satisfactory than a fish-tail bit.

The use of the following methods and equipment is considered good practice in keeping the hole within prescribed limits on vertical deflection:

(a) Drilling rigs are equipped with weight indicators to guide the driller as to the weight carried on the bits. All good drillers after a little experience with weight indicators know the proper weight to carry on a particular type of bit in a particular formation to make the hole and at the same time keep it straight.

(b) Some operators using six-inch drill pipe equip the string with long drill collars and with reamers at various distances above the bit.

(c) Some operators use a stand of eight-inch drill pipe on the bottom of the six-inch string when an 11⅞-inch or larger hole is being drilled.

(d) Some operators using four-inch drill pipe equip the string with a stand of six-inch drill pipe and with long drill collars immediately above the bit or immediately above the bottom joint of six-inch drill pipe. This equipment on the bottom of drill strings fills the hole practically out to gauge from the bottom up to about 100 feet off bottom and prevents the bit from wobbling.

Blow-out preventers should always be used while drilling in wells.

Blow-out preventers have been used to a great extent in East Texas, and should always be used in drilling East Texas wells into the sand. The average bottom-hole pressure in the field at present is approximately 1550 pounds per square inch. This pressure will blow drilling fluid of improper weight out of the hole immediately after sufficient aeration of the column takes place. It is admitted that well mixed mud of 9½ to 10 pounds per gallon will hold down these pressures. However, the human element in drilling does not assure that these weights will exist at all times. Several wells in East Texas have already blown out with disastrous results.

Completing Wells

Christmas tree fittings should be installed before washing a well.

One operator in East Texas has been credited with the statement that if clear water will not hold a well down, nothing will. If this operator actually practices this nonsensical idea, he will probably find himself with a nice blow-out and disastrous fire with probably loss of life to his discredit before he is through with East Texas.

Christmas tree assemblies should be thoroughly tested with a hydraulic pump.

It is bad practice to install Christmas trees without thoroughly testing the assembly with a hydraulic pump to the test pressure of the fittings used.

Christmas tree fittings should be capable of withstanding a test pressure of at least 1000 pounds per square inch.

Small pits should be provided several hundred feet from the

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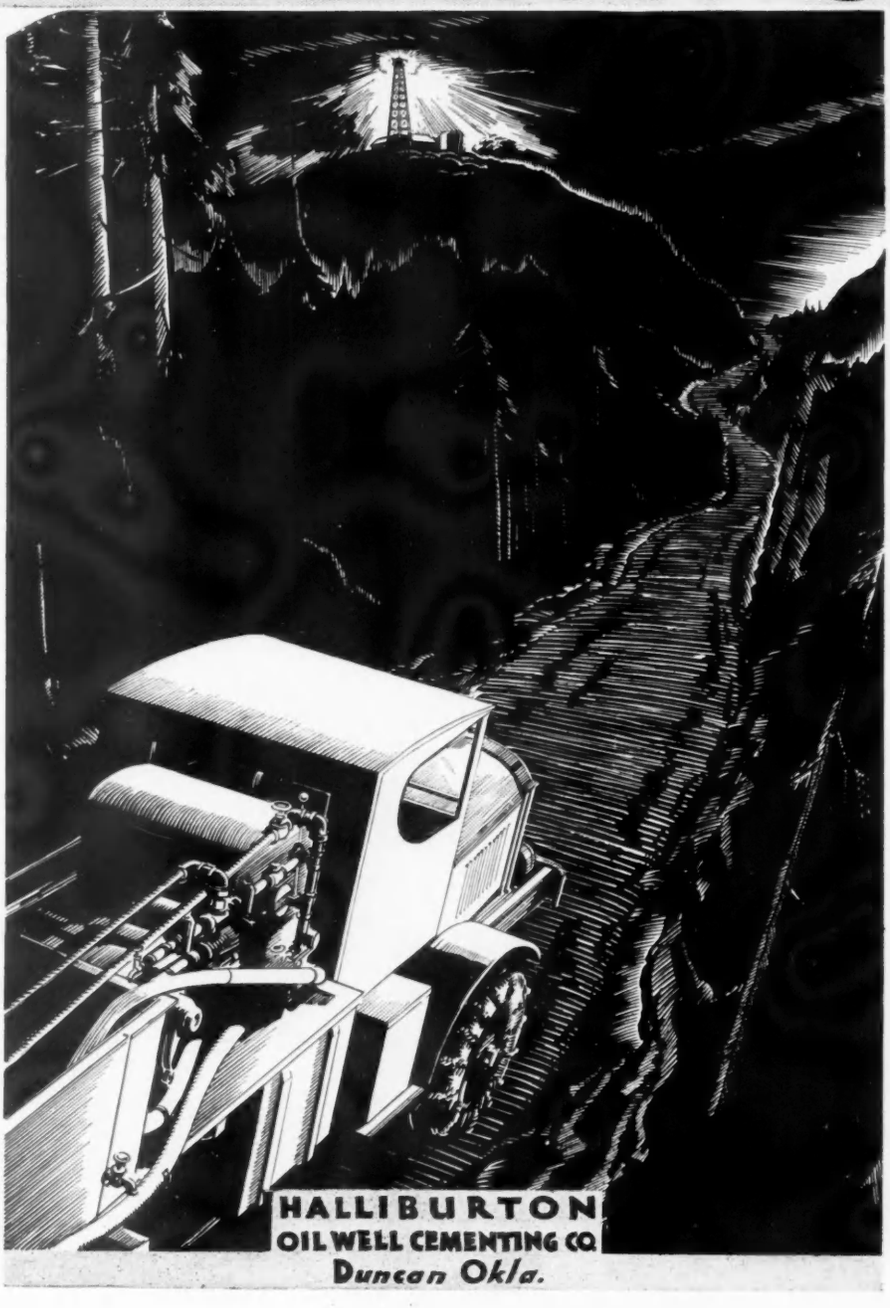

Wherever oil is produced in America, Halliburton service is available. To the wildcat atop a mountain; to the field just beginning to quiver with the bustle of activity; to the well in the middle of the Gulf of Mexico, Halliburton brings the same dependable service as it renders to the operator in a boom field.

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well to receive the mud and cut oil from the well while it cleans itself.

It is bad practice to permit the well to clean itself in the slush pit and reserve pit. This is an extremely dangerous practice and one of the worst fires to date in East Texas is known to have resulted from this practice.

The installation of special cleaning pits at a safe distance from the well assures all oil and gas being in a place where if it catches fire no damage can be done to well or property.

When all fittings are in place and the well brought in in this manner, there is little or no danger of the well catching fire.

After the well is completed the oil in these cleaning pits is either burned or used as road oil as soon as possible to prevent it washing away during a rain storm and getting into the creeks.

Wells should be completed only in the daylight hours.

It is extremely dangerous to complete a well at night, as the gas produced in East Texas is very flammable and heavy, and at night when the air is damp and heavy the gas will stratify in the timber and low places where it can very easily be ignited. It is easily conceivable that an explosion of gas of this kind could cause great loss of life.

Wells should not be swabbed when the wind is blowing from the well towards the boilers or other source of fire.

If the well is swabbed while the wind is blowing towards the boilers, torches or other fire hazards, it may carry spray from the well which could become ignited and cause a bad fire.

A swab chamber long enough for swab and sinker should be used when swabbing oil from a well.

When swabbing oil from a well in order to aerate the oil column sufficiently to start the flow, a swab chamber should be used; this will prevent loss of oil and gas and will eliminate a fire hazard.

Smoking and automobile traffic should not be permitted in the vicinity of a well while it is being brought in.

Despite precautions, gas may escape from a well during completion; smoking or automobiles may cause a fire.

Do not permit a well to spray oil over a large area during the cleaning operation.

Often this oil will not be of sufficient amount to collect in pools, but the first rain will wash much of it off the grass and bushes and out of the soil and into the creeks, causing pollution.

Allowing a well in the cleaning operation to flow open a sufficient length of time as to cause high concentration of gas in a low area or in timber, even though the oil is going into a pit far removed from the well or tanks, is extremely dangerous practice for the reason that workmen or dwellers in a boom field, and especially in a wooded area such as East Texas, may be out of sight of the well operations and still in the danger zone of a gas explosion.

Conclusion

The foregoing recital of bad and good drilling practices may not cover all of the drilling methods used in East Texas and the Committee invites comments pointing out additional practices or amplifying those already discussed.

The practices outlined in this paper are familiar to every intelligent and experienced oil man. All of these practices are easy to accept or reject. Almost every practical oil man is willing to accept good practices and use them in his business, but many of them are not willing to go to much trouble to do so. The adoption of any accepted set of Good Practice rules in any business calls for some effort. Carelessness and chance-taking is the great evil confronting every industry. The cost of these good practices over the bad is very silght, and invariably cheaper in the long run.

From a cost standpoint these good practices provide the cheapest insurance possible.

Kilgore Completion Employs Very Small String of Pipe

Tyler, Texas. —Using three-inch casing as the oil string, Lone Star Oil Company has made a successful completion of its Griffin 1, located in the M. V. Winkle Survey and in the Kilgore section of the East Texas field, with an initial flow of 225 barrels of oil daily flowing through choke on 1¼-inch tubing. This unusually small string of pipe was cemented at 3546 feet, and the well logged Woodbine sand at 3557-3592 feet. Surface pipe consisted of 165 feet of seven-inch casing.

Although the 6⅝-inch and seven-inch sizes of casing come nearer fulfilling the pipe requirements of wells in this field, a number of companies have used the next smallest and largest sizes because of having such material on hand with no other suitable place to utilize same. Sinclair Oil & Gas Company has used more 5 3/16-inch pipe for the oil string than other operators, and by doing so has materially reduced drilling time on the 3600-foot holes. Some of the contractors working for the latter company often drill to the top of the sand after allowing surface pipe cement to set in about 72 hours, when 5 3/16-inch pipe is to be used.

Government Reports Kettleman Hills Gas Waste Has Stopped

Washington, D. C.—The Kettleman Hills oil field which is the "East Texas" of the West, has been harnessed, according to information received by Secretary Wilbur, at the Department of the Interior.

The Kettleman Hills North Dome Association, organized with the assistance of the department, covering the government lands in the field, has gained control of its wells and shut off gas that was going to waste until all that now comes to the surface is used. It may, in fact, find it necessary to open new wells that it may supply its demand for natural gas.

This result has been due to the formation of this agency providing for the unit operation of the field, all owners or lessees sharing in the returns in proportion to their acreage.

Before the Kettleman Hills North Dome Association was formed more than 130,000,000 cubic feet of gas a day, enough to supply half the State of California, was being wasted. Two high pressure wells were out of control. New methods of dealing with high pressures, applied after months of preparation made it possible to "kill" these two wild wells and substitute production from newer wells that were put down with a better understanding of the proper method of tapping the oil-gas reservoir.

In such a reservoir the gas is on top and the oil at lower levels. If the well is drilled through the gas area and allowed to produce from the oil area the result is that more oil is brought up in proportion to the gas. This is the present method of production, made possible by unitization.

Before it could shut off the wild wells the association resorted to another method of salvaging a part of the wasting gas. It connected to a pipe line to the Buena Vista Naval Oil Reserve, not far away, and pumped 6,000,000 cubic feet a day into the sands of that field. There it is stored for future withdrawal.

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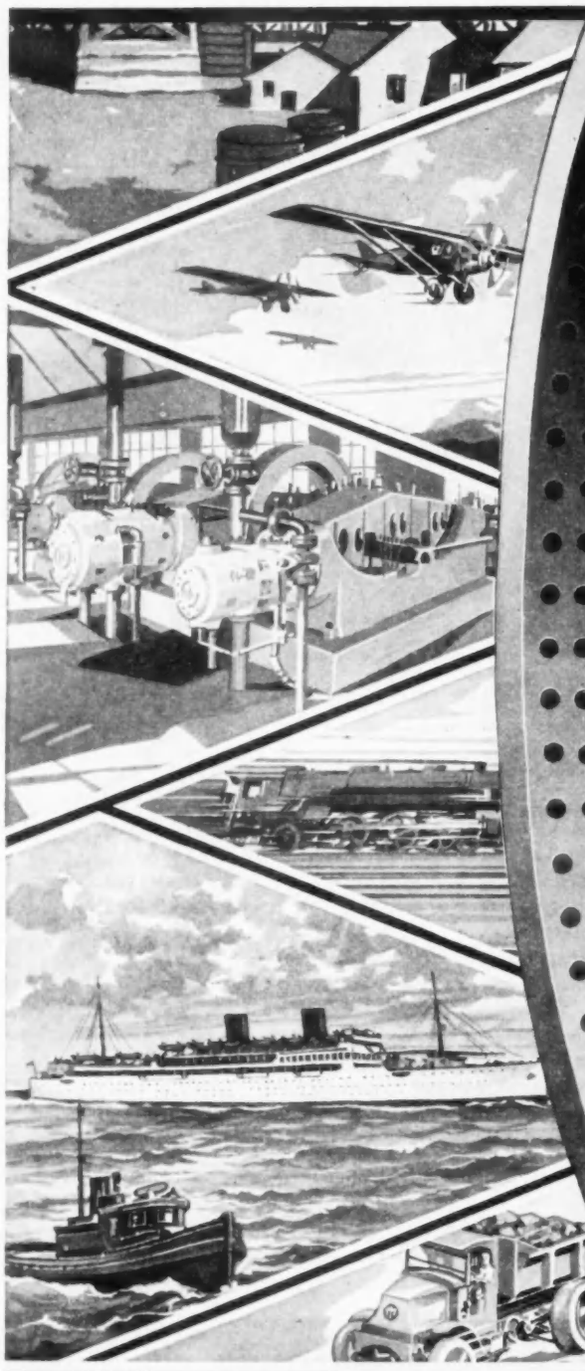

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Markets • Production • Crude Prices

H. J. STRUTH, ***Staff Economist, Houston, Texas***

Production in East Texas Average Off 47,850 Barrels

Average daily production of the East Texas area declined last week to the extent of 47,850 barrels. However, while the daily average of the field amounted to 381,400 barrels, the field was actually producting slightly above 400,000 barrels at the end of last week, from 2200 wells. At the latter rate, the indicated daily production rate for Texas is about 977,000 barrels, or about 77,000 barrels more than the economic limit set by the Oil States Advisory Committee.

Of a somewhat disturbing nature last week was the report of new wells completed in East Texas, which showed that 118 wells were brought in with a combined initial production rated at 1,063,300 barrels. While the potential production figure may not reflect the actual status of production possibilities, the fact remains that the total number of wells continues to increase at a rate which must result in a continually higher rate of allowable production. On the basis of an excess of 2300 wells, it is seen that allowable production in East Texas is already up to a total daily average of 425,000 barrels. That the rate of production will continue to increase is apparent since drilling activity, in accordance with the railroad commission's order limiting new wells to 20-acre tracts each, will undoubtedly show little, if any, let-up. This condition will perhaps force the railroad commission to revise the well-allowable to a lower figure, in order to prevent physical waste from overproduction. Although the primary consideration of the commission's limitation order calls for the prevention of underground physical waste, it is obvious that excessive production above normal market requirements will also constitute a form of waste that cannot be ignored.

While the crude oil market situation continues to indicate an improved tone, it is felt in oil circles that the one deterrent to higher crude prices is the unfavorable condition of the gasoline market. Despite the fact that production of crude has been maintained at levels somewhat below current market requirements, the situation in the wholesale and retail gasoline market has aroused sentiment against refiners paying higher prices for crude oil. At present prices for crude and gasoline, refiners are finding it difficult to prevent financial losses. Nevertheless, gasoline stocks are being reduced at a material rate, as a result of curtailed refinery operation, and many believe that the immediate outlook is beginning to show signs of improvement. In the meantime, the producing branch of the industry is marking time, awaiting the first sign to warrant the posting of increased crude prices.

Crude oil production of the United States last week, according to estimates of the American Petroleum Institute, recorded a daily average of 2,147,450 barrels, a decrease under the preceding week of 45,900 barrels. Texas outside of Gulf Coast registered a decrease of 59,700 barrels, California 2900 barrels, Kansas 600 barrels, Arkansas 500 barrels, and Rocky Mountain States 250 barrels. Increases in production were reported by Eastern States, Oklahoma and the Gulf Coast amounting respectively to 7000 barrels, 9200 barrels and 1850 barrels. All producing districts of Texas reported declines in production last week, ranging from 200 barrels in North Texas to 47,850 barrels in East Texas. The total decline for the state amounted to 62,300 barrels. Actual daily average production of Texas amounted to 957,450 barrels.

Indicated demand for crude during the last quarter of this year is set at 2,343,000 barrels, while the combined economic limit and allowable production figure stands at about 2,363,500 barrels. If these figures are maintained by the industry throughout the balance of this year, there will result an increase in storage of crude amounting to about 1,840,000 barrels. However, at present rates of production, chiefly because of continued enforcement of the shut-down at Oklahoma City, it is seen that crude storage will continue to be drawn upon to the extent of about 196,000 barrels a day. This will offset the result of any sharp increase in production in the near future. Under existing conditions, it is logical to conclude that even though East Texas production has exceeded 400,000 barrels a day, there is sufficient leeway in the supply and demand situation to warrant the posting of higher crude prices.

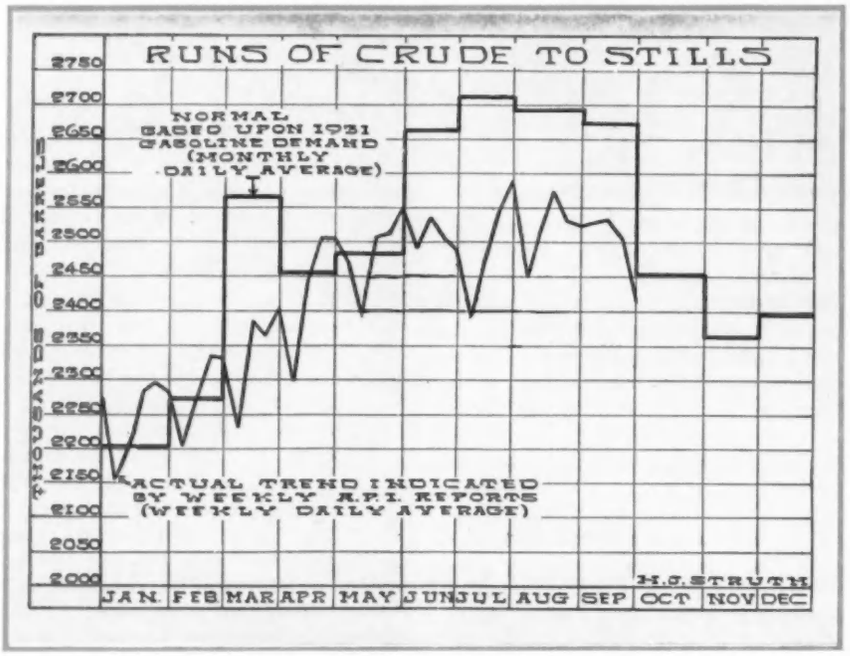
Crude Refinery Runs Sharply Curtailed During Last Week

Reports to the American Petroleum Institute of crude runs to refinery stills show that there was a decline last week amounting to 64,000 barrels a day. Total runs reported to the Institute amounted to 16,036,000 barrels, a daily average of 2,291,000 barrels. On a Bureau of Mines basis, this indicates that total runs to stills amounted to a daily average of about 2,360,000 barrels. Reports for the past few weeks have shown a steady decline in refinery still runs which have dropped from a daily average of 2,533,000 barrels on September 12 to the present rate of 2,360,000 barrels, a net decline for that period of 173,000 barrels a day.

The effect of reducing refinery still runs at this time is favorably reflected in the continued reduction in gasoline stocks. Stocks of gasoline on hand October 3, were reported to the American Petroleum Institute at 30,368,000 barrels, a decline under the preceding week of 405,000 barrels.

The amount of crude runs through refinery stills from January 1 to August 31, according to the Bureau of Mines report, was 598,765,000 barrels, against a total of 635,590,000 barrels during the same period of last year. This represents a decline under last year of 36,825,000 barrels. Comparison of crude oil production in the United States during that period shows that the industry produced 567,793,000 barrels, against 618,973,000 barrels last year, a decline of 51,180,000 barrels. If one includes imported crude oil in the above figures, the new supply for this year has amounted to 599,592,000 barrels, against 661,039,000 barrels, a decline of 61,447,000 barrels. Had refiners reduced still runs to the extent indicated by the rate of decline in crude oil production, it is likely that gasoline excess storage would have been eliminated and prices of both gasoline and crude oil would now be somewhat higher.

MARKET SECTION



Stocks In August Decline Nearly 14,000,000 Barrels

Stocks of crude oil in the United States, according to a report of the Bureau of Mines, declined during August to the extent of nearly 14,000,000 barrels. This was attributed to the shutting down of wells in Oklahoma and Texas, being partly reflected during that month in the production figures.

Production in Oklahoma declined from a daily average of 523,000 barrels in July to only 286,000 barrels in August; Texas production declined from 1,092,000 barrels a day in July to 1,044,000 barrels in August. The latter figure did not reflect the subsequent shutdown of the East Texas area, under martial law. It is seen, therefore, that the September report of the Bureau of Mines will show a further material decline in both production and stocks of crude oil.

Stocks of refined products fell off nearly 2,000,000 barrels in August, giving a total withdrawal from all stocks of close to 16,000,000 barrels. The daily average new supply during August totaled 2,314,000 barrels, whereas the daily average indicated domestic demand for all oils was

Crude Runs to Stills, Gasoline Stocks and Gas and Fuel Oil Stocks

Week Ending September 26, 1931
(Figures in barrels of 42 gallons)

District	Potential Capacity (Daily) Total	Potential Capacity (Daily) Reporting	Per Cent	Crude Runs to Stills Total	Crude Runs to Stills Daily Average	Crude Runs to Stills Per c't Operated	Gasoline Stocks (see note below)	Gas & Fuel Oil Stocks
East Coast	633,700	633,700	100.0	3,493,000	499,000	78.7	3,702,000	10,821,000
Appalachian	149,600	137,400	91.8	730,000	104,300	75.9	1,260,000	1,604,000
Ind., Ill., Ky.	436,300	431,500	98.9	2,269,000	324,200	75.1	3,786,000	4,975,000
Okla., Kans., Mo.	485,700	435,200	89.6	1,744,000	249,100	57.2	2,793,000	5,127,000
Texas	838,200	765,400	91.3	3,655,000	522,100	68.2	5,342,000	11,514,000
Louisiana-Arkansas	233,100	230,500	98.9	1,156,000	165,100	71.6	833,000	3,458,000
Rocky Mountain	159,400	142,300	89.3	391,000	55,900	39.3	1,213,000	808,000
California	912,500	880,100	96.5	3,051,000	435,900	49.5	*11,844,000	97,513,000
Total week Sept. 26	3,848,500	3,656,100	95.0	16,489,000	2,355,600	64.4	30,773,000	135,820,000
Total week Sept. 19	3,848,500	3,656,100	95.0	17,022,000	2,431,700	66.5	31,123,000	135,133,000
Total Sept. 27, 1930	3,686,400	3,525,400	95.6	17,512,000	2,501,700	71.0	(a)35,571,000	140,779,000
The Texas and Louisiana Gulf Coastal figures shown below are included above in the totals of their respective districts.								
Texas Gulf Coast	532,500	531,500	99.8	2,757,000	393,900	74.1	4,133,000	8,155,000
Louisiana Gulf Coast	147,500	147,500	100.0	786,000	112,300	76.1	586,000	2,495,000

Note: In all the refining districts indicated except California, figures in this column represent gasoline stocks at refineries. In *California, they represent the total inventory of finished gasoline and engine distillate held by reporting companies wherever located within continental United States—(stocks at refineries, water terminals and all sales distributing stations, including products in transit thereto).

(a) Revised in Indiana-Illinois district, due to transfer to "Bulk Terminals" of stocks previously reported as "At Refineries".

MARKET SECTION

HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH NECESSARY AND NORMAL QUOTA LIMIT

State—	Indicated Demand Third Quarter 1931	Economic Limit Third Quarter 1931	Daily Average Last Week	Daily Excess Last Week	Daily Average Since January 1	Daily Excess Since January 1†
Arkansas	56,000	50,000	37,600	—12,400	44,945	—11,055
California	500,000	487,500*	497,700	10,200	524,566	28,766
Kansas	113,000	110,000	107,250	—2,750	106,729	—6,271
Louisiana	75,000	60,000	58,950	—1,050	63,414	—10,586
Oklahoma	525,000	546,000*	273,500	—272,500	467,942	—38,758
Texas	860,000	900,000*	957,450	57,450	883,564	171,864
Balance of U. S.	214,000	210,000	225,000	15,000	207,109	—34,591
Totals	2,343,000	2,363,500	2,147,450	—206,050	2,298,269	99,369

*Allowable.
†Excess based on allowable to date.

2,648,000 barrels. This indicates an approximate deficiency in August of 334,000 barrels a day.

Daily average runs of crude oil to stills continued to increase during August when they amounted to 2,602,000 barrels, a gain of 29,000 barrels over the previous month. The throughput of foreign crude, however, showed a decline of 12,000 barrels a day.

Houston.—Effective October 1, Humble Oil & Refining Company inaugurated a five-day week for employees of its pipe line department, thus reducing the number of working hours per week from 48 to 40. This action is in keeping with a similar one employed in the refinery department of the company.

The order affects 420 employees who were working a full 48-hour schedule in the pipe line department. However, it provides employmnt for 87 additional ones who might have been without work.

Cracked Gasoline Production

Week Ending September 26, 1931

(Barrels of 42 gallons)

East Coast	261,300	236,300	90.4	657,000	93,900
Appalachian	56,300	54,100	96.1	182,000	26,000
Ind., Ill., Ky.	330,400	315,400	95.5	546,000	78,000
Okla., Kans., Mo.	237,800	219,500	92.3	432,000	61,700
Texas	450,800	436,200	96.8	947,000	135,300
Louisiana-Ark.	112,400	112,400	100.0	225,000	32,100
Rocky Mountain	99,100	97,600	98.5	93,000	13,300
California	190,800	190,800	100.0	272,000	38,800
T'tl week Sept. 26	1,738,900	1,662,300	95.6	3,354,000	479,100
T'tl week Sept. 19	1,738,900	1,662,300	95.6	3,389,000	484,200
Total Sept. 27, 1930.	1,589,200	1,328,600	83.6	2,751,000	393,000

The Texas and Louisiana Gulf Coastal Figures Shown Below are included above in the totals of their respective districts.

Texas Gulf Coast	352,400	347,400	98.6	769,000	109,900
Lo. Gulf Coast...	77,000	77,000	100.0	163,000	23,300

Imports of Petroleum at Principal United States Ports

(Barrels of 42 Gallons)

AT ATLANTIC COAST PORTS—	Week Ended September 26	Week Ended September 19
Baltimore	185,000	138,000
Boston	65,000	123,000
New York	774,000	882,000
Philadelphia	70,000	272,000
Others	240,000	112,000
Total	1,334,000	1,527,000
Daily Average	190,571	218,143
AT GULF COAST PORTS—		
Galveston District	63,000	.....
New Orleans & Baton Rouge	40,000	167,000
Port Arthur & Sabine District	.....	.....
Tampa	.....	.....
Total	103,000	167,000
Daily Average	14,714	23,857
AT ALL UNITED STATES PORTS—		
Total	1,437,000	1,694,000
Daily Average	205,285	242,000
Daily Average Four Weeks Ending	218,179	209,536
Distribution of Total Imports is as Follows:		
Crude	457,000	987,000
Gasoline	440,000	113,000
Gas Oil	.....	24,000
Fuel Oil	540,000	570,000
Total	1,437,000	1,694,000

Receipts of California Oil at Atlantic and Gulf Coast Ports

(Barrels of 42 Gallons)

AT ATLANTIC COAST PORTS—	Week Ended September 26	Week Ended September 19
Baltimore	50,000	43,000
Boston	.....	110,000
New York	189,000	37,000
Philadelphia	.....	.....
Others	94,000	"A" 113,000
Total	333,000	303,000
Daily Average	47,571	43,286
AT GULF COAST PORTS—		
Total	.....	80,000
Daily Average	.....	11,428
AT ATLANTIC AND GULF COAST PORTS—		
Total	333,000	383,000
Daily Average	47,571	54,714
Daily Average Four Weeks Ended	35,679	38,393
Distribution of Total California Oil Receipts is as follows:		
AT ATLANTIC COAST PORTS—		
Gasoline	136,000	"A" 216,000
Fuel Oil	197,000	"A" 87,000
Total	333,000	303,000
AT GULF COAST PORTS		
Gasoline	.....	80,000
Total	.....	80,000

MARKET SECTION

United States Daily Average Production

1930	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
June	665,550	133,600	668,300	210,500	40,300	56,900	135,750	84,600	598,000	2,593,500	77,806,900
July	594,750	121,600	652,350	209,400	40,550	55,400	137,200	98,350	610,450	2,520,050	78,121,200
August	558,850	115,650	646,400	206,600	41,500	55,100	128,550	106,000	611,250	2,470,900	76,597,600
September	558,900	116,550	606,550	200,750	40,150	53,550	121,400	110,650	604,900	2,413,400	72,402,205
October	542,100	114,850	609,500	194,850	41,500	52,800	121,750	104,000	590,800	2,372,150	73,536,350
November	491,550	111,400	579,350	190,100	44,050	52,000	116,400	101,950	601,200	2,288,000	68,639,150
December	459,300	105,550	533,400	189,300	43,000	51,100	112,200	100,500	587,450	2,181,800	67,636,500
1931											
January	452,000	106,350	511,050	188,850	41,100	50,700	110,300	96,700	535,700	2,092,750	64,874,450
February	473,750	114,450	523,700	185,600	43,950	49,950	109,800	100,100	527,300	2,128,600	59,600,450
March	531,900	110,550	585,000	177,950	40,250	47,550	108,800	95,400	528,100	2,225,500	68,990,850
April	543,650	109,250	723,050	185,850	39,050	47,000	111,500	95,500	527,350	3,382,200	71,465,750
May	561,950	107,400	767,200	185,950	39,200	46,650	111,250	97,500	534,150	2,451,250	75,975,950
June	556,850	103,150	828,250	170,100	36,500	44,900	108,950	97,950	520,300	2,466,950	74,009,750
July	527,950	100,000	912,250	157,850	33,650	41,400	107,600	94,400	517,900	2,493,000	77,282,700
August	310,000	102,100	976,450	153,650	30,400	37,600	109,450	92,900	510,250	2,322,800	72,004,300
Sept. 5	256,600	98,700	461,150	151,050	29,800	37,900	114,550	93,350	503,200	1,746,300	12,224,100
Sept. 12	256,400	100,600	628,050	149,400	29,900	38,100	114,850	91,400	510,300	1,919,000	13,433,000
Sept. 19	258,450	108,100	892,400	150,350	29,700	38,050	119,300	93,350	511,900	2,201,600	15,411,200
Sept. 26	264,300	107,850	896,150	148,900	29,200	38,100	116,600	91,650	500,600	2,193,350	15,353,450
Oct. 3	273,500	107,250	836,450	150,750	29,200	37,600	123,600	91,400	497,700	2,147,450	15,032,150
Increase	9,200	.....	.....	1,850	.....	.....	7,000	.....	.....	.....	.....
Decrease	.....	600	59,700	.....	.....	500	.....	250	2,900	45,900	321,300

Last Week's Daily Average Production by Districts

TEXAS	Oct. 3	Sept. 26
Panhandle	64,200	67,100
North Texas	53,900	54,100
West Central Texas	25,400	25,900
West Texas	199,000	204,850
East Central Texas	57,250	57,850
East Texas	381,400	429,250
Southwest Texas	55,300	57,100
Texas Gulf Coast	121,000	123,600
Total Texas	957,450	1,019,750
OKLAHOMA	273,500	264,300
CALIFORNIA	497,700	500,600
KANSAS	107,250	107,850

LOUISIANA	Oct. 3	Sept. 26
North Louisiana	29,200	29,200
Louisiana Gulf Coast	29,750	25,300
Total Louisiana	58,950	54,500
KANSAS	37,600	38,100
MOUNTAIN STATES		
Wyoming	36,550	36,650
Montana	7,450	7,900
Colorado	4,300	3,950
New Mexico	43,100	43,150
Total Mountain States	91,400	91,650
EASTERN STATES	123,600	116,600
TOTAL UNITED STATES	2,147,450	2,193,350

Summarized Review of Field Results

State—	Completions This week	Completions Last week	Oil Wells This week	Oil Wells Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Arkansas	0	0	0	0	0	0	0	0	0	0
California	3	4	3	4	0	0	0	0	590	3,300
Illinois	0	0	0	0	0	0	0	0	0	0
Indiana	2	0	0	0	1	0	1	0	0	0
Kansas	2	9	1	4	1	3	0	2	5	415
Kentucky	5	1	3	0	1	0	1	1	45	0
Louisiana	12	8	4	1	3	2	5	5	4,742	3,600
Michigan	4	0	2	0	1	0	1	0	4,000	0
Mississippi	1	1	0	0	1	1	0	0	0	0
New York	12	0	0	0	4	0	8	0	0	0
Ohio	14	15	3	1	5	13	6	1	86	0
Oklahoma	11	10	5	5	3	1	3	4	5,042	18,720
Pennsylvania	12	1	0	0	2	1	10	0	0	0
Texas	143	119	124	106	5	2	14	11	1,066,685	820,680
West Virginia	8	10	2	0	5	10	1	0	2	0
Total	229	178	147	121	32	33	50	24	1,081,197	846,715
Increase		51		26		..		26		234,482
Decrease		..		..		1		..		..

Comparison of Permits Granted for New Wells

State—	For Week Ending Oct. 3	Previous Week	This Week 1930	Total This Month	This Month 1930	Total this Year	Total This Date Last Year	1930 Year Total
Arkansas	1	0	0	2	11	28	81	108
California	5	6	24	34	122	292	690	922
Louisiana	1	3	11	24	81	246	784	948
Kansas	7	5	0	30	80	350	772	944
Oklahoma	6	13	0	72	218	642	2,337	2,830
Texas	185	192	93	800	492	4798	5,983	7,052
Total	205	219	128	962	1004	6356	10,647	12,804

MARKET SECTION

Oklahoma Oil Production Tangle to Be Unraveled

Tulsa.—The tangle that has come into Oklahoma oil production from proration and martial law as well as politics now seems destined to hit the climax that will mean its unraveling. As regards proration, some officials in charge of its enforcement now admit that there has been illegal production in excess of orders of the corporation commission. Martial law will come into consideration because proration has been enforced under military orders since August. The political angle is enjected into oil affairs in Oklahoma simply because the oil producers understood that martial law was declared as a means of forcing the price of oil to a dollar a barrel and now there is a conviction that the oil situation has played a part in whatever political aspiration the Oklahoma governor may have as a candidate for president of the United States.

One investigation is under way over the records of Otto Bradford, umpire of the Oklahoma City field. This audit of his books is being made at his request, for his resignation, made two weeks back, evidently was for the purpose of bringing about this audit.

The state tax commission is checking reports filed by producers for gross production tax payment against other reports of production.

Cicero I. Murray, cousin of the governor and in charge of martial law in the oil fields, has announced that he will ask for a thorough public investigation of the records of oil production in prorated fields when the Oklahoma governor returns from a speaking tour into Nebraska and Iowa. Already there is opposition to this public investigation.

There have been insinuations of violations of proration orders since the day the first order was written by the Oklahoma Corporation Commission. Generally these were accepted as rumors and the petroleum industry gave them little heed. When martial law was declared the Oklahoma governor made statements to the effect that proration orders had been violated.

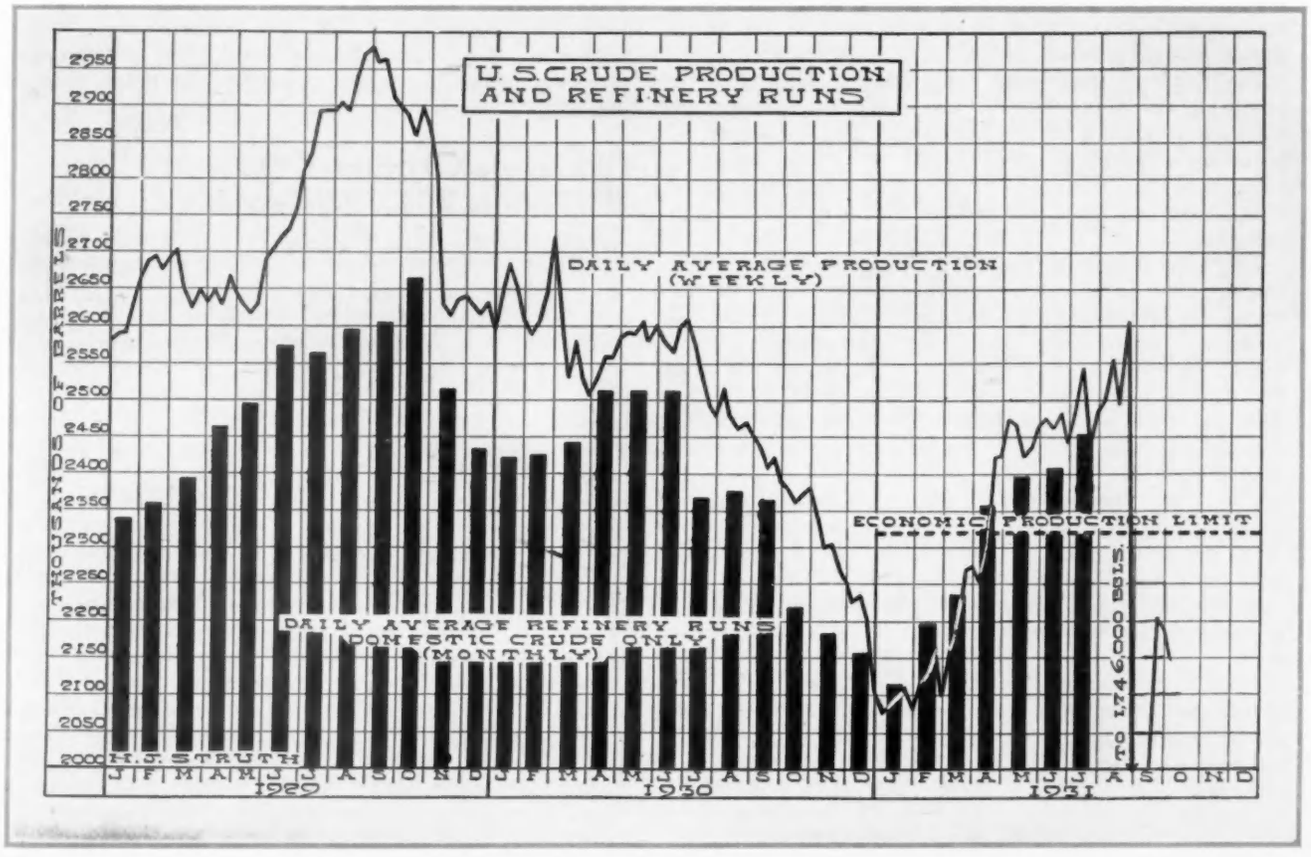
Statements that followed the resignation of Otto Bradford, umpire of the Oklahoma City field, two weeks ago made this talk of violations of proration something more than "talk." Bradford gave his resignation to the operators' committee. Although his salary is paid by the producers there, he is the agent of the corporation commission and this body would not accept the resignation. The opinion was general that no blame could be placed in the office of the umpire of the field.

Bradford gave out a statement October 1 which clarified his position. It would seem that he has known of violations and that his resignation and request for an audit of his books was the method selected to make the facts public. One sentence of his statement was:

"Many of us know that there has been, prior to August 5 (when military law was declared) several thousand barrels of oil illegally produced by different companies over and above their regular allowable under the proration rules of the corporation commission." He explained that differences in reports of production and reports for taxation purposes led to this conclusion.

Another paragraph from the statement says:

"The umpire's office is well aware that there is, without



MARKET SECTION

question, one company in particular whose excessive runs have gone into thousands of barrels and thinking that his average when completely checked as outlined above, might reflect that the office of the Oklahoma City field umpire had been more or less derelict in its duties, we thought it our duty to resign and ask that committee of three be appointed to examine our records so that if the blame for this was saddled on our office, after an honest investigation, that it might facilitate matters by having made this resignation."

The statement further explained that prior to July 1 there was no method for checking production figures given the umpire against the purchases of oil in the field by buyers. The law provided for reports of purchases by pipe line companies but oil bought for refineries in the field could not be checked.

One result of all this was the return of closer military supervision over the Carr City field of the Seminole area. The new order issued by Cicero Murray forbids night work in the fields. All well connections had to be checked to see that only the regular methods of delivering oil from wells to tanks and from tanks to pipe lines were used. Reports were ordered for oil in storage, also daily reports on deliveries either by pipe lines or tank cars and reports by purchasers of oil taken from that pool. Even the employes of the state umpire's office were placed on footing identical with oil field workers in that they could not go on properties except by permission of Murray.

Another order sent to all producers in the Seminole area charged that allowable production had been exceeded and continued:

"This is to advise that upon receipt of the next report that on all leases where there has been violation of allowables made that an order will be issued for a complete shut-down of all leases violating said order by producing the amount in excess of the allowables made by the undersigned without further notice."

The Seminole fields are under martial law but wells producing water have been allowed to produce. Murray contended that production has been in excess of amounts allowed by order of his military authority. This last order directed to the Seminole area forbid the drilling of wells in the Carr City pool, except on a few leases, which were designated.

The order which was violated came to the petroleum industry in a peculiar manner. When martial law was declared the petroleum industry expected the umpire system —which prevailed under proration—to be abandoned. Although no move ever was taken to change the status of Ray Collins, umpire for the state, the production of water-oil wells in Seminole was fixed without his assistance. He received a list of wells that would be allowed to produce with the amount of daily output for each well. This did not bear any signature but Collins was directed to mail it to Seminole producers.

It is this order which has been violated according to the later order from Cicero Murray.

Mr. Collins stated after reading the Murray charge that he believed over-production would be found in the Seminole area.

The Oklahoma governor was out of the state when these events took place but he gave out a press statement to the effect that he knew there had been violation of proration and military orders.

So now it seems that violations have been suspected, if not actually known for a long period. The petroleum industry is waiting for explanations as to why earlier efforts were not made to stop the violations.

A committee is not checking the books of the umpire of the Oklahoma City field, as he desired. The state tax commission is due to check reports made to it against production records of the umpire's office.

Then there is the possibility of the general investigation of the whole subject of proration by order of the governor. What will come out of this can not be anticipated; for Governor Murray will have to consider the question of re-opening the Oklahoma fields shortly after his return. Last week Tulsa bankers conferred with him relative to re-opening the Oklahoma City field as well as those in the Seminole area. He promised to give it consideration. Bankers are anxious to have the output of the state go back to around the figure set for Oklahoma at the conference in the state capitol September 11, 546,000 barrels.

Even some of the producers who led the move to have martial law declared and the fields shut down are now in favor of re-opening the wells without waiting for dollar oil. Oil producers had the impression that martial law was invoked for the purpose of getting a dollar a barrel for oil. Now it seems that Governor Murray contends that he closed the wells because purchasers did not meet his demand for dollar oil but that he did not make price any part of his move in closing the fields.

So the way is clear for investigations that will clarify the atmosphere concerning violations of proration and perhaps martial law. So many in authority say that there has been violation that it has been accepted as a fact.

Also the scenery seems to have set for re-opening the Oklahoma City and Seminole fields under proration. Many questions will come up for settlement if the Oklahoma City field is re-opened. In July some producers closed their wells prior to the military order. Others took all oil allowed for July in anticipation of the military order. There will be a controversey concerning the right of the voluntary shut-down well owners to make up the production lost in July.

Oklahoma City Stored Oil Declines to 252,395 Barrels

Tulsa.—Stored oil in the Oklahoma City field stood at 252,395 barrels October 1. The total September 1 was 617,650 barrels.

Stocks are being reduced in most of the Oklahoma fields. While no figures have been made public, those who calculate runs against production say that withdrawal is running close to 200,000 barrels for the Mid-Continent.

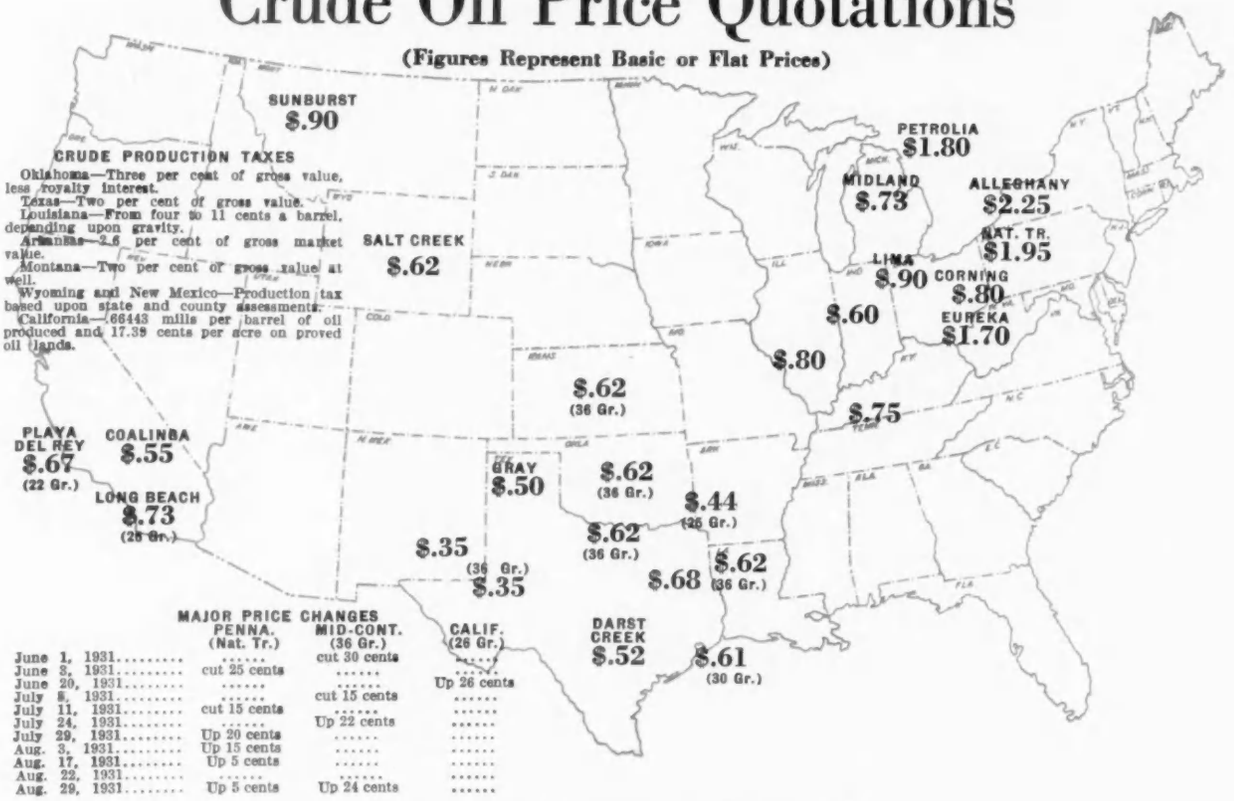
Kewanee Oil & Gas Company has reduced its production in the Burbank field to 650 barrels daily, a drop of 500 barrels. Bell Oil & Gas Company has restored the posted price for oil purchased in Southern Oklahoma. It announced a reduction September 23 but went back to the prevailing schedule last week and made it retroactive.

The latest move of Cicero Murray to reduce activity in the Oklahoma City field has brought daily production to the zero point. Monday the production reported was only gasoline, except for "pick-up oil," which had gotten out of tankage.

The 11 wells in the Schurr pool, Rice County, Kansas, were given daily output of 100 barrels each by the Kansas Public Service Commission and were ordered opened October 2. The allowable for the Ritz-Canton field was raised from 10 per cent to 15 per cent.

Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)



MAJOR PRICE CHANGES

	PENNA. (Nat. Tr.)	MID-CONT. (36 Gr.)	CALIF. (26 Gr.)
June 1, 1931.....	.....	cut 30 cents	.....
June 8, 1931.....	cut 25 cents	.....	.....
June 20, 1931.....	.....	.....	Up 26 cents
July 8, 1931.....	.....	cut 15 cents	.....
July 11, 1931.....	cut 15 cents	.....	.....
July 24, 1931.....	.....	Up 22 cents	.....
July 29, 1931.....	Up 20 cents	.....	.....
Aug. 3, 1931.....	Up 15 cents	.....	.....
Aug. 17, 1931.....	Up 5 cents	.....	.....
Aug. 22, 1931.....	.....	.....	.....
Aug. 29, 1931.....	Up 5 cents	Up 24 cents	.....

Official Postings and Differentials

(Revised to October 6, 1931)

California: (Effective June 19, 1931.

Signal Hill, Seal Beach and Alamitos Heights: 14 to 22.9 gravity 65 cents; 23 gravity, 67 cents with differential of two cents for each degree upward. Top price for Signal Hill, 30 gravity, 81 cents; top price Seal Beach and Alamitos Heights, 27 gravity, 75 cents.

Huntington Beach: 14 to 21 gravity, 65 cents; 22 gravity, 66 cents with differential of two cents for each degree upward. Top price, 27 gravity, 76 cents.

Inglewood: 14 to 19.9 gravity 65 cents; 20 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity 76 cents.

Playa Del Rey: 19 to 20.9 gravity 65 cents with differential of one cent for each degree upward. Top price, 25 gravity, 70 cents.

Olinda and Brea Canyon: 14 to 19.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents; 22 gravity 68 cents with differential of two cents for each degree upward. Top price, 28 gravity, 80 cents.

Coyote Hills: 14 to 22.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents with differential of two cents for each degree upward. Top price, 28 gravity, 79 cents.

Santa Fe Springs: 24 to 26.9 gravity 65 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 73 cents; 30 gravity 75 cents; 31 gravity 78 cents; 32 gravity 80 cents; 33 gravity 83 cents; 34 gravity 85 cents; 35 gravity and above 87 cents.

Whittier, La Habra and Montebello: 65 cents a barrel.

Torrance: 14 to 21.9 gravity 65 cents with differential of one cent for each degree to 25 gravity and two-cent differential for 25 gravity. Top price, 25 gravity, 70 cents.

Richfield: 14 to 20.9 gravity 65 cents; 21 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity, 74 cents.

Elwood: 33 gravity 79 cents; 34 gravity 81 cents with differential of three cents for each degree upward. Top price, 36 gravity, 87 cents.

Newhall, McKittrick and Kern River: 55 cents a barrel.

Midway-Sunset, Elk Hills and Buena Vista Hills: 14 to 21.9 gravity 55 cents; 22 gravity 56 cents; 23 gravity 58 cents; 24 gravity 61 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 74 cents; 30 gravity 76 cents.

Los Hills: 14 to 20.9 gravity 55 cents; 21 gravity 57 cents; 22 gravity 59 cents; 23 gravity 60 cents; 24 gravity 62 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 67 cents; 28 gravity 69 cents; 29 gravity 71 cents; 30 gravity 72 cents.

Coalinga: 14 to 24.9 gravity 55 cents; 25 gravity 57 cents.

Wheeler Ridge: 55 cents a barrel.

Athens, Dominguez and Rosecrans: 24 to 24.9 gravity 69 cents with differential of two cents for each degree upward. Top price, 34 gravity, 89 cents a barrel.

Oklahoma, Kansas, North Texas (Effective Aug. 22, 1931).

Flat Prices.

Oklahoma: Cushing, Yale, Oklahoma City, Morrison, Wewoka and Seminole: 68 cents. **Cement, Duncan, Walters:** 60 cents; **Healdton:** 37 cents; **Hewitt and Graham:** 52 cents.

North and Central Texas: Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden: 68 cents; **East Texas:** 68 cents.

Gravity Scale Prices: Below 28 gravity 44 cents a barrel with differential of 2 cents for each degree beginning with 28 and ending with 40 gravity and above. Top price 70 cents a barrel.

Texas Panhandle: (Effective Aug. 22, 1931).

Gray County: Below 35 gravity, 46 cents with differential of 2 cents for each degree beginning with 35 and ending with 40 gravity and above. Top price 58 cents a barrel.

Carson and Hutchinson Counties: Below 35 gravity, 41 cents with differential of 2 cents for each degree beginning with 35 and ending with 40 and above. Top price 53 cents a barrel.

West Texas: (Effective Aug. 22, 1931.)

Crane, Upton, Crockett, Ector, Howard, Glasscock, Pecos and Winkler Counties, Texas, and Lea County, New Mexico, 35 cents flat.

Southwest Texas: (Effective Aug. 22, 1931.)

Refugio heavy oil 60 cents a barrel.

Refugio light oil—same as Gulf Coast (see below).

Gulf Coast: (Effective Aug. 22, 1931.)

Goose Creek, Hull, Liberty, Orange, Pierce Junction, Mykawa, Moss Bluff, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugarland, West Columbia, Humble and Refugio Light: Below 25 gravity 55 cents, with differential of 1 cent for each degree beginning with 25 gravity and ending with 35 and above. Top price, 66 cents a barrel.

Mirando: 60 cents; **Salt Flat,** 52 cents; **Darst Creek,** 52 cents; **Pettus:** 70 cents; **Markham:** 52 cents.

East Texas: (Effective Sept. 2) flat price, 68 cents.

North Louisiana and Arkansas: (Effective Aug. 22, 1931.)

Caddo, Homer, Haynesville, Bull Bayou, Sabine, Cricton, De-Soto, El Dorado, Cotton Valley, Sarepta, Cartersville: Below 29 gravity 44 cents with differential of 1 cent for each degree beginning with 29 gravity and ending with 40 and above. Top price 70 cents a barrel.

Smackover: 52 cents.

Rocky Mountain States: (Effective Aug. 22, 1931).

Salt Creek: Below 29 gravity 46 cents; 38 gravity and above 66 cents.

Elk Basin and Grass Creek: 90 cents; **Big Muddy:** 68 cents; **Lance Creek:** 105 cents; **Rock Creek:** 70 cents; **Sunburst:** 90 cents; **Osage:** 98 cents; **Cat Creek:** 65 cents; **Pondera:** 70 cents; **Hogback, New Mexico:** 72 cents.

Eastern States: (Effective Aug. 24, 1931).

Lima: 90 cents; **Indiana:** 60 cents; **Illinois:** 80 cents; **Princeton:** 80 cents; **Wooster:** $1.00; **Western Kentucky:** 75 cents.

Pennsylvania: (Effective Sept. 16, 1931). **Bradford District:** $2.25; **National Transit oil:** $1.95; **Southwest Pennsylvania Pipe Line oil:** $1.80; **Eureka Pipe Line oil:** $1.70; **Buckeye Pipe Line oil:** $1.60; **Corning crude:** 80 cents.

Michigan: (Effective Aug. 22, 1931). **Midland:** 73 cents a barrel. **Muskegon:** Same posting as Mid-Continent; 44 cents to 70 cents a barrel.

Canada: (Effective Aug. 24, 1931).. **Petrolia:** $1.80; **Oil Springs:** $1.87.

Big Lake Oil Possesses Superior Lube Quality

San Angelo, Texas.—Leading manufacturers of high grade lubricating oil are taking cognizance of the recent discovery that crude produced from the lower section of the 8500-8900-foot oil and gas horizon in the Big Lake field yields about 30 per cent amber colored paraffin base lubricating oil reputed to be comparable in quality with the best grades of Pennsylvanian oils. The Texas Company has recognized the value of this deep production as a lube source, and has contracted for 3000 barrels of the unmixed crude to be furnished by Big Lake Oil Company daily for a period of two years at a price of 20 cents per barrel premium above the highest prevailing Mid-Continent price posting of any major company during the life of the contract. The Texas Pipe Line Company's West Texas trunk line connects with the above producer's Big Lake tank farm, and is batching the premium grade of crude through its lines to Port Arthur.

It is reported that The Texas Company is negotiating for a second contract involving the delivery of an additional 5000 barrels daily for a period of three years under the same price terms. Two other major companies are reported to have offered to pay 10 cents bonus above the current top Mid-Continent gravity scale price for the residue from the skimming plant operations of Republic Oil Refining Company's plant at Texas City loaded aboard tankers. The latter plant has a contract for 5000 barrels of Big Lake crude daily to be delivered by Big Lake Oil Company, which is a 50-50 owner with Republic Oil Company of Pittsburgh, in Republic Oil Refining Company. The Texas Pipe Line Company delivers the crude to the Texas City plant on a common carrier basis at 32½ cents per barrel.

Valuable lube content of the deep production in the Big Lake field did not materialize until several months ago when a mid-summer drop in gravity of the oil produced by the nine deep wells then on production took place. Two of the deep wells had been deepened into the lower section of the Pennsylvanian formation on the Big Lake Oil Company's property, thereby resulting in a sharp reduction of the gas yield per barrel of crude. The latter's University 1-C is yielding the best crude for manufacturing lube oil, having halted drilling at 8908 feet on July 10 after a series of deepening jobs and passed through the heavy gas starta. University 1-C gauged 2007 barrels of 43-45 gravity (corrected) oil and 2,639,000 cubic feet of wet gas, flowing against 1100 pounds back pressure on the casing during the 24 hours ending 7 a. m. October 3. University 5-C, located on the same lease, produced 5136 barrels oil and 25,263,000 cubic feet of gas, with 450 pounds back pressure on the casing and 500 pounds pressure on the tubing, during the same period. Owners of 5-C did not succeed in drilling past the prolific gas horizon, which is supplying a high percentage of gasoline in the crude because of condensation of the wet gas.

Big Lake Oil Company's University 4-C is being deepened to the lower horizon with rotary, and University 2-C and 3-C were shut-in several months ago in the upper section of the deep pay in order to conserve the gas pressure, as the company is able to fulfill its contracted sales of crude from the two deep wells now on production and 169 wells in the 2400- and 3000-foot horizons.

Group One Oil Corporation, which is now controlled by Continental Oil Company, is preparing to deepen University 1-B, discovery well of the deep zone in the field, after having killed the oil and gas flow September 19. A cement plug was set in this well late last month at the 6800-foot level while the workover crew is engaged in cutting out the 5 3/16-inch badly worn casing to ream the hole and land a larger string near the bottom of the hole, which is listed at 8523 feet. University 4-B is producing from the upper section of the Pennsylvanian series, and started the present week off with a daily yield of 9304 barrels of 51 gravity oil and 63,464,000 cubic feet of gas, flowing against 760 pounds back pressure on the casing. The gravity of the oil from this well has decreased about 10 degrees since it was placed on production at 8587 feet late last May.

Big Lake Oil Company's University 6-C is the only new deep test authorized for the field, and heavy rotary rig was being installed early this week to proceed with drilling. The location was staked last December, then held up.

Estimate Shows 1931 World Output Less Than 1930

(*Continued from page* 15)

from the previous year, which increase coupled with the voluntary curtailment of the Venezuelan production, places Russia ahead of Venezuela as second in rank. Should the Russian government continue to meet with success in the intensive development of selected oil regions, it is very likely that this country will remain as the second largest producer for a long time.

Venezuela

The production of Venezuela is estimated at close to 118,000,000 barrels or about 20,000,000 barrels lower than the previous year. This reduction has been brought about largely through the conservation policy followed by the major oil producing companies which voluntarily have adjusted their output to conform with similar programs of conservation in the United States.

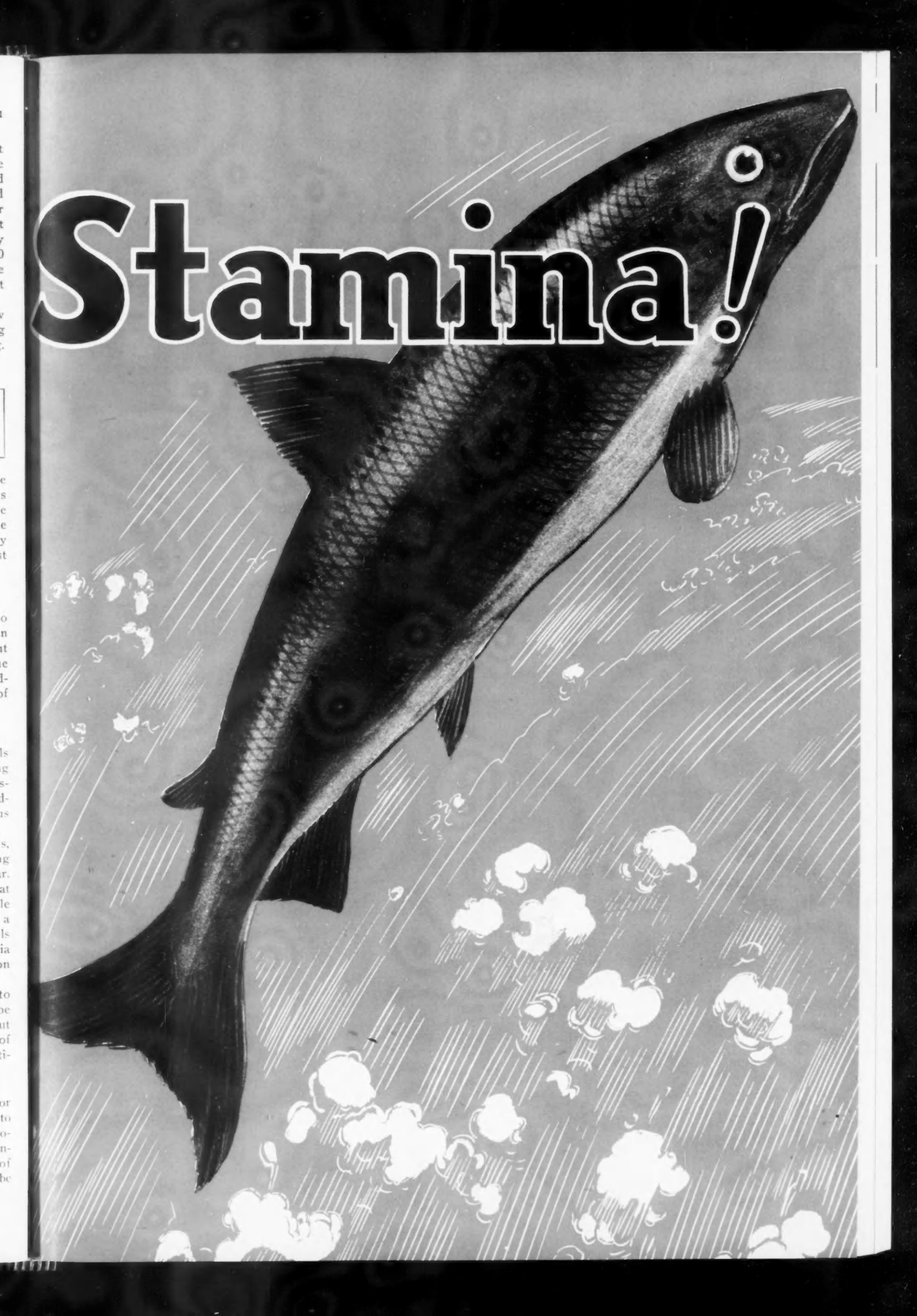
Roumania

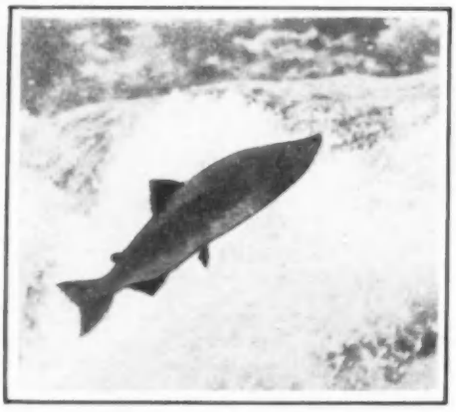
Production in Roumania increased about 7,000,000 barrels in 1931, bringing the total to 48,000,000 and thus placing Roumania as fourth in rank ahead of Persia. The disorganized development of these fields at a time when worldwide cooperation is essential offers one of the serious obstacles to successful coordination of the industry.

The orderly development of the Persian fields continues, in 1931 output being estimated at 47,000,000 barrels, showing an increase of about 2,000,000 from the previous year. The fields of Dutch East Indies should produce at approximately the same rate as the previous year, while the Mexican fields continue their gradual decline with a production close to 34,000,000 barrels, or, 5,000,000 barrels lower than in the previous year. Production in Colombia will be somewhat curtailed in line with the similar action taken in the American and Venezuelan fields.

There is little of importance worth noting in regard to the development of other producing countries, as will be seen by the accompanying table which shows their output for 1929 and 1930 as given by the United States Bureau of Mines and that of 1931, representing the preliminary estimate based on figures so far available.

Tulsa.—Phillips Pipe Line Company has placed an order for the immediate construction of one 80,000-barrel steel tank to be erected at Paola, Kansas, on the company's eight-inch gasoline trunk line. Two 20,000-barrel capacity tanks are to be installed at the Kansas City, Kansas, terminal, and one tank of like capacity at Wichita, Kansas. All these tanks are to be equipped with Wiggins floating roofs.


Stamina!



A Salmon Leaping a Waterfall.

Stands the Gaff!

AN interesting fish is the salmon. It is a fresh water fish, bred in streams far inland. When but fingerlings, these fish leave the rivers or brooks and go out to sea, where they remain (and no one knows where) until their fourth year. They return in "runs" of thousands of other salmon, large and fully matured. These fish swim and fight their way up streams, hundreds of miles. It is remarkable how they overcome the obstacles of swift rapids, rocks in shallow streams, small cataracts, and large waterfalls, leaping falls as high as 20 feet.

How remarkable the stamina of these salmon! How they can stand the gaff of the tremendous force of the water, flowing downstream, especially over the falls and rapids, and how they fight for their existence to fulfill their purpose in life!

B.S.&B. Perfection Vapor Pressure TANKS

B. S. & B. Tanks, like the salmon, have proved their stamina through their many years of service. These tanks stand the gaff of tremendous pressure, vacuum, time, and the elements. You have no doubt seen tanks that have collapsed or bulged in a way to make them useless. But you have never seen a B. S. & B. PERFECTION Vapor Pressure Tank that could not stand the gaff of what is required in the oil fields.

These Tanks are more than mere shells. If a salmon were a spineless creature, it would not have the strength and fortitude to perform as it does. These tanks likewise have a skeleton—a complete framework inside.

The B. S. & B. Thief Hole Pressure Vacuum Valve is a safety device that operates automatically at 16 ounces pressure or 2 ounces vacuum. It is regular equipment on all B. S. & B. PERFECTION Vapor Pressure Tanks.

We also manufacture A. P. I. Tanks. B. S. & B. A. P. I. Bolted Steel Tanks conform to A. P. I. dimensional standards and to the exacting standards of B. S. & B. manufacture, and carry the official A. P. I. monogram.

Stamina !

Because of the hydrogen sulphide gas in sour crude in the Panhandle and Southwest Texas fields, B. S. & B. Vapor Pressure Tanks are built of redwood and are able to stand the gaff. Thus "The Tank That Defies Corrosion." All metal parts inside, essential for strength, are insulated with wood. These tanks are equipped with B. S. & B. Thief Hole Pressure Vacuum Valve.

Stamina !

Another instance of stamina is the B. S. & B. Safety Walkways and Stairways—these strong, fire-proof, slip-proof, adjustable, and portable walkways and stairways for Tank Batteries of any size, and for other purposes. (Only 5 different kinds of material used.) They may be adjusted to any height or length. As easy to erect as the building toys, and they will stand the gaff of fire, time, and weather of all kinds. The first cost is the last cost.

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B. S. & B. Service ("On the Dot—on the Spot") also has stamina. Well do we realize the speed that is required, or desired, in the oil industry, so we have an organization that makes it possible to furnish tanks FROM THE BRANCH TO A LEASE IN A FEW HOURS' TIME. 50 Field Stations located throughout the Mid-Continent and Rocky Mountain Fields. Each with complete stocks as well as trained tank crews.

Let us prove by facts, figures, or a definite demonstration how B. S. & B. PERFECTION Vapor Pressure Tanks stand the gaff, and prove their stamina. We've a representative in your vicinity who would gladly call to talk tanks, or if you prefer, we would tell our tale by catalog or mail. Just address Dept. X-21.

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Comments of Engineers on Oliver Proposal for Unit Operation

(*Continued from page 24*)

owners of land in an oil field are very much like the different parts of the body; they cannot say to each other, 'I have no need for thee.' Participation on an acreage basis eliminates the need of expensive capital outlay for establishing facts necessary to determine the productivity of different parcels of land.

"If there be those who insist that an evaluation of each separate parcel must be made, I believe with Mr. Umpleby that it can be made and think that it can be made at no greater expenditure than present day methods embody in establishing the same facts in the haphazard development of an oil field. Following the establishment of these facts, it is clearly evident that the elimination of over-drilling and the attendant benefits of unit operation will more than make up for such initial expenditure."

A. C. Smith, Assistant Manager of Production, North Texas Division, The Texas Company, Wichita Falls

"Fundamentally, I am opposed to governmental regulation of private business. It can only be justified during an emergency, such as the over-production of oil we are now experiencing. An emergency measure must be capable of rapid application. It, therefore, must be readily acceptable to the great majority of the citizenship affected. Proration meets this need at this time. The great majority of operators are sold on it. Governmental agencies are successfully applying it, except in one glaring instance, and in this case correction may be anticipated at an early date. Proration preserves individual initiative and at the same time, if properly applied, results in a ratable use of the gas energy of a pool so necessary to the protection of the co-relative rights of the various interest owners. Compulsory unitization is not desirable except as an emergency measure. As an emergency measure, in my judgment, it is not practical, because the oil fraternity in general is not sufficiently educated in the advantages of unitization to accept it without vigorous protest. Since they will accept proration, concerted effort should be concentrated on this principle. Another advantage of proration over compulsory unitization, as an emergency measure, is that the former avoids the complicated question of the legal theory as to ownership of oil and gas in place.

"Not being an engineer, I can offer no constructive suggestion as to a method of determining the relative oil and gas content of individual tracts of land in a pool. I have great faith in the ability of our engineers, however; and I believe they can determine that relative content with sufficient accuracy to serve as a basis for trading and agreement in the formulation of voluntary plans for unitization. I regard the development of voluntary unitization as being inevitable in the industry as information with respect thereto becomes more wide-spread, and in my judgment it need not be required by statute law. To my mind, the voluntary attainment of the desired end is much more desirable because individual initative is preserved."

H. C. Fowler, U. S. Bureau of Mines, Washington, D. C.

"Replying to your letter of June 6, in which you request a brief synopsis of a method whereby in a common pool the relative oil and gas content of individual tracts of land can be determined in line with Judge German's comment, or an opinion as to whether an equitable apportionment of oil and gas content of the individual tracts can be made within the limits set by Judge German, I offer you the following paragraphs as my personal opinion regarding the points raised by Judge German:

"For a number of years, gas engineers have been applying relationships between rate of flow, formation pressure, and back pressure at the sand face of a well in order to gauge the capacity of the well to deliver gas. These fundamental relationships are now fairly well understood, and development of the art and science has reached a point where, by application of these relationships, gas reserves can be estimated with a fair degree of accuracy. Since this is true for gas, it is reasonable to suppose that the capacities of oil pools under so-called 'volumetric control' may be estimated with a fair degree of accuracy, also.

"Results of recent research bear out the opinion that has been held for some time, namely, that there is a common fundamental relationship governing problems which pertain to the movement of oil, gas, and oil-gas mixtures whether this movement is through pipe lines, in vertical pipes, of whether there is migration or travel of these fluids through porous materials.

"Admittedly, no pool of oil and/or gas will have the same physical characteristics throughout its volume or extent, or even from one well to another, and the uncertainties of calculation because of such factors as water encroachment and possible errors in field records are recognized. Nevertheless, if data are obtained carefully from wells drilled at selected sites and application is made of present knowledge regarding such factors as compressibility of natural gas under pressure and its deviation from the laws of a perfect gas, the relations of solubility of gas in oil under reservoir conditions, the effects of pressure and temperature upon the characteristics and volumes of hydrocarbon fluids, the laws governing fluid-flow through porous media, and the relationships of such physical characteristics of the producing strata as permeability and porosity to the amount of recoverable oil and gas, there seems to be no engineering reason why the oil and gas which may be recovered from individual tracts of land in a common pool can not be estimated.

"In my opinion, no one method now in existence is adequate for general application to all conditions. To develop such a method, the thought and experience of engineers throughout the country, and in fact, throughout the world, must be combined and correlated. With this mass of data and experience assembled, a method or methods may be evolved which may have an accuracy even greater than might have been contemplated by Judge German in his statement 'within reasonable bounds,' but any method to be entirely equitable should have provisions for adjustment of initial estimates, based upon actual quantities of oil and gas produced from the common pool."

Eugene A. Stephenson, Professor of Petroleum Engineering, Missouri School of Mines, Rolla

"Legal procedure relating to the petroleum industry has for the most part been based on complete ignorance of the natural laws which control production, and hence has arisen the term used by Suman 'legalized piracy.' The driving force which propels the fluid to the surface is known to be either (1) the gas pressure, or (2) the hydraulic head, facts which must not be overlooked in critical studies of production problems. Since the direct application of these two forces may be upon the oil which underlies tracts quite remote from the tract under consideration, the oil production from an individual lease may be driven thereto from some distant tract, and since it is virtually impossible to produce from any average sized tract only the oil immediately underlying it, it seems that it would be much

more desirable to either allocate the production on the basis of the energy utilized in producing the oil, or to recognize the community nature of the pool and allocate the production partly upon the areal extent of individual holdings and partly upon the well capacities. The latter should be expressed in equivalent pipe diameters.

"The attempt to use the estimated content of oil and gas under each individual tract certainly has some merit. However, the method is at best merely an approximate one, since the quantity of oil recoverable may be widely different from the quantity present underground. Sand thicknesses, porosities, and saturation may vary so greatly within such short distances that the data necessary for the calculation of the acre content of each tract may not become available until late in the history of the pool, while estimates based on a few observations of this character may be extremely unfair.

"The method in use at Kettleman Hills which assumes equal productiveness per acre for the field is eminently fair and it is being demonstrated that the production can be allocated strictly on the basis of the areal extent of individual holdings without great injustice to anyone.

"The writer believes that attempts to allocate production on the basis of the estimated content of individual tracts will lead to continued dissatisfaction among the operators and will make it much more difficult to bring about a program of unitization than would be the case if either of the above mentioned methods should be followed."

V. H. Wilhelm, Chief Petroleum Engineer, The Texas Company, Los Angeles

"Most suggested unit plans tend to penalize top structure wells on account of their normally higher gas-oil ratios. Other plans based on operating conditions penalize the edge wells under water drive type of production, where under curtailed production their oil is being driven up structure from their property by the encroaching water.

"In order to make a satisfactory allotment of oil and gas, a complete study would need to be made under original conditions. Sufficient wells would have to be drilled to determine the productive limits, variation in thickness, porosity and saturation of the sands. Each well would be subjected to a production test to determine production, gas-oil ratio and formation pressure. These results would be checked against core data for determining the gas and oil content of the sands. After the production test the well would be shut in until all other test wells were completed. Production should be controlled with gas conservation and control of edge water encroachment as primary objectives.

"The allotment of oil and gas produced under unit operation is an engineering problem which can be solved, although there will always be certain inequities in distribution amongst landowners. The economies in operation under a unit plan will be so great that these inequities will not materially affect the returns to the landowners; in other words the inequities under unit operation would certainly be much less than under the present method of drilling and producing competitively."

C. E. Beecher, Production Engineer, The Empire Companies, Bartlesville

"The oil and gas content of a pool can be determined within reasonable accuracy provided the pool is properly explored to determine its contents at various points and to outline its limits. It is unreasonable to presume, or even expect that the oil and gas content can be determined prior to a reasonble amount of exploratory drilling. Attention is called to the extensive core drilling operations that are carried on to carefully prospect the depth, thickness, extent, character and quality of any ore body before mining operations are actually started. Many oil pools have a potential value equal to or greater than the ore deposits. Such being the case, why is it not just as logical to prospect an oil pool as an ore body before actual development. As a matter of fact it is more important because of the nature of the minerals.

"The cost of prospect drilling for an ore body is expected to be less than for an oil pool but the expenditure is a total loss except for the knowledge gained. In contrast to this the prospect wells drilled in an oil pool can be used for production purposes and the money thus invested is not lost except possibly for the dry holes. The cost of the dry holes could therefore be considered the only prospecting expenditure to be written off as a total loss.

"Information obtained from the prospect wells on which to base calculations for the oil and gas content of a pool should be as complete as possible and include such data as the following:

"1. Thickness and character of the oil and gas zones to be obtained from actual cores wherever possible.
"2. Porosity and character of the pore space.
"3. Oil saturation.
"4. Bottom hole or true formation pressure.
"5. Formation temperature.
"6. Amount of gas dissolved in the oil.
"7. Amount of free gas.
"8. Analysis of the gases.
"9. Outline of any free gas area or zone.
"10. Location of bottom and edge waters.
"11. Analysis of waters.

"With the above information available, the oil and gas underlying individual tracts can be calculated with sufficient accuracy to determine the value of each with respect to the entire pool."

Warner Clark, Assistant General Manager, Production Department, Standard Oil Company of California, San Francisco

"I feel that oil is fundamentally a public resource, and that so far as the law permits, it should be so handled, but in as much as we have to deal with surface ownerships they should be made the unit basis of prorating reserves. Reserves, to my mind, are those accumulations of recoverable oil which underlay a surface ownership. Therefore the equities involved in a pool on a basis of surface ownership should be determined on the basis of reserves. The reserves can be calculated after the pool is outlined and its inherent characteristics determined.

"Each parcel of land should be allowed a relative recovery consistent with the relation which its reserve or accumulations bear to the total reserve or accumulations in the pool. Practically, it is very hard to apply these principles because royalty interests in particular are anxious to realize on their values. Therefore, as soon as a general conception of the field is gained, it would be helpful to issue negotiable certificates or stock representing the different equities. Over the period in which the field was being outlined and the definite value of equities determined, the issue of certificates although less than the total value involved would prevent stampede drilling in order to realize on the various values.

"Before leaving this point, I wish to say that as far as I am concerned, C. A. Young, secretary of the A. P. I. in Dallas, is responsible for this idea.

"Without some such method of designating equities involved, I see no way of preventing a newly discovered field from being drilled, even if the relative equities are determined. There are sure to be persons involved who desire immediate cash and under the present system, even when the field is most definitely prorated, such realization

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AN INVESTMENT • NOT AN OUTLAY

is possible in an inverse ratio to the degree of curtailment. This brings a demand in each field for high production and the sum total of these demands exceeds consumption.

"To my mind unit operation has been very carefully and intelligently considered and I am inclined to think the majority of oil men will agree upon the fundamental principles of unit operation, but I am also convinced that until the negotiable certificate has been added to the plan we shall have grave difficulty in keeping the supply in line with the demand."

David Donoghue, Consulting Geologist and Engineer, Fort Worth

"After a discovery well has been drilled, by proper spacing of additional test wells, by coring of the entire thickness of the producing horizon, by testing the cores for porosity and saturation, by observing the flow from these tests, and measuring the pressures and gas-oil ratios, it is my opinion that a close estimate of the relative percentage of the amount of oil and gas under the various tracts within the producing area of the pool can be determined."

E. H. Griswold, Petroleum Engineer, Continental Oil Company, Ponca City

"The original distribution of oil and gas in a pool and the relative proportions underlying each individual tract can be very closely determined by the drilling of several representative test wells and obtaining the following data before opening any of the wells for production:

"(a) Thickness of producing horizon.
"(b) Porosity of producing horizon.
"(c) Water level.
"(d) Bottom-hole rock pressures.
"(e) Gas saturation.
"(f) Oil saturation.

"In the belief of the writer, the above method can be satisfactorily applied to all pools producing from sandstones. Its application to fields producing from limestones will be only in the most general and broad manner because of the eccentric and nonhomogeneous character of the producing formations."

F. H. Lahee, Chief Geologist, Sun Oil Company, Dallas, Texas

"With reference to Judge German's comment, mentioned by you, it is of course entirely feasible to make scientific estimates of the productivity of parts of a pool, provided a reasonable number of wells are drilled at selected locations, and provided cores of the producing sand are secured, and provided the behavior of these wells in producing oil or gas, is carefully studied. I believe, however, that first estimates should be revised at the end of a stipulated time, previously agreed upon, and these second estimates should again be revised after a similar interval. By this method, adopted in the case of the Van pool, any erroneous estimates can subsequently be corrected, and financial adjustments can be made, so that all participants in the pool will get their fair and just amount of oil in proportion to their holdings and in proportion to the actual productivity of their acreage.

"We must get away from the absurdly uneconomical, unscientific method of developing a pool on the basis of drilling along property lines, and of trying either to save our own oil from our neighbors, or to steal as much oil as we can from our neighbors. An oil "pool" is a natural unit which cannot be properly or economically developed except by scientific methods of spacing, drilling and producing. It is a travesty on the industry that, with all the advances in scientific search for oil and scientific refining of oil, our usual procedure in developing a pool remains so antiquated and so unsound in principle."

Marvin Lee, Consulting Geologist, Wichita, Kans.

"Present engineering and geological skill are usually able to outline the probable limits of a new pool. With such limits known or tentatively agreed upon, drilling will determine the actual boundaries. By fair valuation of included properties based on known factors of geology, engineering and recovery in similar areas, it should be possible to agree upon some method of unit operation that would be fair to all investors."

Ben E. Lindsly, Senior Petroleum Engineer, United States Bureau of Mines, Bartlesville

"It is my opinion that sufficient data can be obtained through methods known at the present time 'to estimate within reasonable bounds fertility of that portion of the producing formation which lies under the surface of the land of each proprietor.' Until sufficient data have been acquired: (a) Every well should be carefully cored; (b) formation pressures and temperatures of each well should be determined; (c) formation samples at formation pressures, of the gas-saturated oil, and of the free gas in contact with the oil should be obtained for each well.

"Although the technique indicated under (c) is not sufficiently developed at present to obtain the required data, progress on the problem of securing formation samples is being made. In lieu of bottom-hole samples, the writer believes that well head samples taken under the highest pressure possible, and then subjected to laboratory examination and temperatures corresponding to those existing underground, would lead to estimates (within reasonable bounds) of the characteristics of the oil and gas existing 'under the surface of the land of each proprietor.'

"By combining data relative to the permeability and porosity, determined under (a), with data obtained under (b) and (c), the degree of oil and gas saturation in the producing formation underlying certain areas can be estimated. By knowing the thickness of the producing formation these data can be converted into actual quantities—barrels of oil and cubic feet of gas underlying each tract. Having estimated the quantities of oil and gas under each tract, the third important item relates to the propulsion energy contained in the gas-saturated oil and the free gas underlying each tract. Reasonable estimates of this item can be made from the data outlined above, under (a), (b) and (c). By modifying the estimates determined from the above original and fundamental data with later estimates from data obtained by operating wells at definite bottom-hole pressures and standardized producing strings, it is believed that in most cases, fairly accurate estimates (estimates well within those specified by Judge German) can be made of the relative amounts of oil, gas and propulsive energy underlying each lease. Also that such estimates can be made fairly early in the life of an oil pool—possibly when it is not more than 10 or 15 per cent depleted."

A. F. Melcher, Consulting Engineer, Tulsa

"In my opinion it is possible to determine relative productivity of individual tracts in a common pool within the limits of accuracy described by Judge German by means of wells properly spaced, careful observation of oil and gas flow as drilling progresses, and the use of other field data such as: Condition of well at the time of production, laboratory data on analysis of cores, laboratory data on analysis of gas and oil, and other helps that might be mentioned. This statement applies especially to tracts where the production is from sands or sandstones. It would be more difficult by this method to determine relative productivity of individual tracts where the production is from a limestone, especially a cavernous limestone."

Wallace Pratt, Geologist, Vice President of Humble Oil & Refining Company, Houston

"I am glad to advise you of my conviction that the ability of a property to produce oil, or of an oil pool to produce

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oil, can be determined by practical methods accurately enough that the approximate total volume and the approximate percentages for the several leaseholds, of which the pool is comprised, can be set up in advance of actual commercial production in the pool. Different pools may require different methods of exploration for this purpose. Tests wells must be drilled, adequate core records maintained, and production tests carried out, if producing properties are to be satisfactorily evaluated. It may become necessary in some cases to adjust equities after commercial exploitation has been inaugurated, and provision should always be made for such adjustment, but this requirement does not interfere seriously with satisfactory evaluation of oil pools and oil properties within oil pools."

A. C. Rubel, Petroleum Engineer, Union Oil Company of California, Los Angeles

"While there is no method of determining with mathematical accuracy the value of any piece of land in advance of actual production, it is, I believe, possible to determine relative values with sufficient accuracy to meet the requirements set by Judge German. I believe it more or less axiomatic that, given equal oil content per cubic foot of sand, the potential productivity of an area in any field as compared to any other area in that same field is directly proportional to the sand thickness open to the well. We have accurate means of determining the sand thickness by coring and as suggested by Doctor Melcher we also have means of examining these cores to ascertain the porosity saturation or other factors which determine the oil content. It would, therefore, seem that we have available all factors necessary to an assignment of relative values when sufficient wells are drilled to delineate the pool. The application of such values would, of course, be subject to adjustment as development in the field progressed. A development program in the early stages of the pool designed to contribute the maximum of information along these lines should make such a method applicable to unit operations."

J. B. Umpleby, Consulting Geologist and Engineer, Oklahoma City

"I believe that engineers would agree in saying that a plan of prospecting and determination might be evolved whereby a reasonably close estimate of the relative quantities of oil and gas underlying adjacent tracts in a common pool might be determined."

Production Equity and Control Feature A. I. M. E. Meeting

(*Continued from page* 17)

a drainage cone consisting of four five-foot joints of heavy steel pipe of six-inch, eight-inch, 10-inch and 12-inch diameter, securely bolted together by means of heavy flanges of sufficient strength to withstand internal pressures up to 3000 pounds per square inch. The principle of this device, as illustrated with slides, is that gas saturated oil is forced under pressure from an absorber to a sand column in the drainage cone. The oil enters the large end of the cone and the flow through the sand within the cone is regulated by slightly "cracking" the control valve at the small or discharge end, thus displacing "dead" oil left in the sand from previous tests. The volume of gas discharged from an outlet at the top of trap is measured by a displacement meter. The volume of oil is also measured. A surprising result of tests conducted with this device shows that the volume of oil delivered is substantially the same for live oil as for dead oil. This suggests to Professor Uren that the primary function of gas in the expulsion of oil from the reservoir sand is that of maintaining field pressure and that gas-bubble growth and flow of gas through the sand are of less importance than many have assumed.

The result of a series of closed-in pressures taken on Amerada Petroleum Corporation's leases at Hobbs, New Mexico, to study the relationship between reservoir pressure and production, was presented by R. S. Christie, Amerada Petroleum Corporation, Hobbs, New Mexico. His paper showed that there was an average drop in pressure from October to January, last, amounting to 22 pounds, which he cited as being due to practices of allowing wells to flow wide open to clean them or to take potentials. From January to April, 1931, there was an average pressure drop of only six pounds. However, during this period few wells were completed and no open-flow potentials were taken except on new wells. Some wells in the Hobbs field had gas-oil ratio of 10,000 cubic feet per barrel of oil. The amount of gas produced from the reservoir, according to Mr. Christie, is proportional to the drop in pressure, provided there is no water encroachment. "The normal production decline is directly proportional to the drop in reservoir pressure and enables computation of ultimate recoveries," Mr. Christie concluded.

"By taking flow depth pressures, it is possible to regulate all wells on the unit so as to have approximately equal producing depth pressures," stated Dale Nix. Mr. Nix showed that there is an interrelation between depth pressures and rate of water encroachment. Prepared discussion on Mr. Nix's paper, presented by Peter P. Gregory, cited the fact that when repressuring operations are contemplated in the early life of a field, it is important to know the reservoir pressure in different parts of the structure, in order to aid in the proper selection of key wells and for design of the repressuring plant.

Advantages of flowing wells through tubing was a subject of considerable interest, prepared by H. M. Marsh, General Petroleum Corporation, Los Angeles, California.

A symposium of local practices was held on Saturday morning and was featured with a comprehensive review of Gulf Coast Salt Domes by Fred Sealy of The Texas Company, Houston. Mr. Sealy presented an outline of the numerous salt domes discovered in this area and touched on their geology and characteristics. Mr. Sealy's outline was illustrated with numerous lantern slides showing the sub-surface structure of various salt dome fields in the Gulf Coast.

One of the concluding features of the production symposium, on Saturday morning, was a review of highlights of engineering problems in the Gulf Coast, by H. J. Struth, staff economist of The Oil Weekly. This paper presented a brief outline of the benefits which have accrued to the petroleum industry through the Houston Ship Channel and followed with a brief review of major engineering problems, such as locating pipe lines from the air; maintenance of pressure; pipe line suspension bridges; pipe line subways; direct-current drilling; pressure-operated snubbing equipment; Diesel engines for deep well drilling; salt water disposal and flood protection. Each of the foregoing subjects were illustrated with lantern-slide

All day Sunday was devoted to a personally-conducted field trip to the Sugar Land oil properties of Humble Oil & Refining Company and thence to Boling for a first-hand view of the methods employed in the recovery of sulphur through steam and pressure operated wells of Texas Gulf Sulphur Company.

North and West Texas Operators Want Increase in Proration Allowances

AUSTIN, Texas. — A 6000-barrel advance in the daily allowable production of the Yates field was sought by a majority of the operators in the area during a general proration hearing held by the Texas Railroad Commission September 30. The hearing also involved proration allowances in the fields in North, Central West, Southwest and West Texas, but few changes from the prevailing program were requested. A separate meeting was given the Panhandle to be held later in the week, while a hearing on the Van field has been booked for October 13.

Requests for an advance in the output of the Yates field from 70,000 to 76,000 barrels daily were largely based on the fact that Shell Petroleum Corporation has authorized a 6000-barrel daily boost in its oil purchases. This company recently lost some of its outside connections when Humble Oil & Refining Company contracted to run and purchase all of Gulf Production Company's output in the Yates field over the balance of the year at the prevailing market price. Under the existing schedule Gulf Production Company's 57 wells in the Yates field are allowed to produce 9769 barrels daily, and Shell Petroleum Corporation was purchasing a portion of this oil until the above mentioned contract with Humble Oil & Refining Company became effective. The latter concern has given its approval of the movement to increase the output of the field to take care of Shell Petroleum Corporation's requirements.

Upon the conclusion of testimony, the commission announced that the question of allocating a larger allowance for the Yates area would be taken under advisement. It is generally known that the commission is being requested by many operators and purchasers operating within the state and also by similar parties and proration authorities of other leading oil producing states to exercise its powers to further restrict the output of the principal fields in Texas.

Each field requested an allowable which the commission was assured would not permit physical waste. In most cases these allowables remained as they were under the old proration orders, and no explanation was made as to how the operators had arrived at the figure selected. Repeated questions from members of the commission failed to extract the plan by which the operators, guided by the old central proration committee, had determined that the suggested figure was exactly proper for the fields in which they have holdings.

Ed Landreth informed the commission that the operators were trying to make allowables for the various fields low enough that the total production of all fields in the state will fall within the 902,000-barrel allowable set for Texas by the oil states governor's council.

E. E. Barrows, chairman of the operator's committee of the Crane-Upton field requested that the present allowable of 18,658 barrels be continued in that field, which has 589 wells. Most of the wells in the field come within the 20-barrel marginal well limit, and 182 of them produce less than 20 barrels.

John Suman of the Yates advisory committee, requested the installation of a six months order prorating that field to 76,000 barrels; the former allowable was 70,000 barrels, but it is believed that the additional 6000 barrels will be purchased by Shell Petroleum Company. There are 402 producers in the field. Suman's testimony led observers to believe that the allowable for the field had been set at the exact market demand.

P. P. Gregory was then placed on the stand as petroleum engineer for the Yates pool committee to give the information that the gas-oil ratio in the field under the present allowable was 500 to one, but that it had been reduced to 400 to one while the field was producing 110,000 barrels. He pointed out, however, that the gas-oil ratio was not the only factor to be considered, and that a higher gas ratio with lower production would be the most satisfactory means of minimizing physical waste, in his opinion. Bottom-hole pressures in the field have dropped from 700 to 615 pounds since the field came in. Gregory stated that he had no idea how the 76,000-barrel allowable figure had been obtained, as he had not been consulted on this, but was sure that no physical waste would occur at this figure.

E. G. Allen, Shell Petroleum Company, chairman of the old Winkler advisory committee, requested that the allowable in that field be cut from 48,000 to 45,000 barrels. The field is producing only 38,000 barrels per day at the present time from 476 wells, more than half of which are running at full capacity and producing 20 barrels of water to one of oil.

E. A. Landreth requested that the present order of 7000 barrels remain in force in the Ector County, Penn pool, where there are 82 producing wells. He stated that the operators in that pool were willing and anxious to do all they could to keep within the 902,000-barrel allowable recommended for Texas.

R. E. Hardwicke requested that the Howard-Glasscock allowable of 29,000 barrels be unchanged.

E. V. Foran recommended an allowable of 30,000 barrels for the three producing horizons of the Reagan County pool. Only three of the deep wells are now producing. These have a gas-oil ratio of 1280 to one, a back pressure of 1200 pounds, and the reservoir pressure is 4000 pounds. At the present time the field is producing 26,000 barrels.

R. R. Penn charged that The Texas Company has been moving 6000 to 14,000 barrels excess oil from the Reagan field to a refinery at Texas City. This charge was denied by Judge C. L. Black, representing operators in the field. Black stated that the recent deepening of some of the deep wells in the field has resulted in the production of a Pennsylvania crude, and the finest oil produced in Texas. Operators are receiving 20 cents above the highest Mid-Continent price for this production, all of which is to be used in the manufacture of lubricating oils.

F. C. Sealy, The Texas Company, requested that the present allowable of 20,000 barrels be continued for the Darst Creek feld, including the recent extension. These wells are prorated on a potential basis. There are 258 producers in the field, and the average oil-gas ratio is about 100 to one.

L. V. Hull, former umpire for North Texas, recommended that the present allowable for that area of 63,000 barrels

(*Continued on page* 63)

Oil and Gas Pipe Line Activities

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New Company Formed to Operate Texas-Empire East Texas Pipe Line

THE Texas-Empire Pipe Line Company of Texas, a new company representing the combined interests of three owners in a 206-mile 12-inch pipe line from the East Texas oil field to Part Arthur on the Gulf Coast, officially began functioning on October 1, at which time the entire line was available for operation, the final tie-in of pipe having been made on that date on the section lying between Sour Lake and Port Arthur. That portion of the system lying north of Sour Lake had been completely welded and tied in on September 20, ready for testing with water, and it has since been filling with oil.

Organization of The Texas-Empire Pipe Line Company of Texas was consummated in Tulsa, Oklahoma, on September 29, and it was decided to make the main headquarters of the company at the Philtower Building, Tulsa. Ownership of the $5,000,000 capital stock of the new corporation is divided as follows:

The Texas Corporation	37½
Empire Gas & Fuel Company (Cities Service interests)	37½
Tidewater Oil Company of New Jersey	25
Total	100

Whatever space is available in the pipe line over that needed in taking care of common carrier business will be divided among the three above named groups in proportion to their ownership in the new company.

Backfilling of The Texas-Empire Pipe Line Company of Texas' 12-inch trunk line from East Texas to the Gulf Coast.

Officers of The Texas-Empire Pipe Line Company of Texas include the following: H. R. Straight, Bartlesville, Oklahoma, president; F. K. Haskell, Bartlesville, Oklahoma, vice-president and manager; F. A. Stivers, Tulsa, vice-president and general superintendent; C. R. Barton, Tulsa, vice-president; and H. L. Stewart, Tulsa, secretary-treasurer. These officers are also on the board of directors, along with George Kinter and J. K. McGoldrick of Tulsa, and A. W. Ambrose of Bartlesville. Other men in the new organization include C. C. Ruff, assistant treasurer, and B. A. McKerren and C. E. Murray, assistant secretaries.

E. L. Newman, formerly district foreman of The Texas Pipe Line Company in the Darst Creek district, South Texas, has been made superintendent of the new pipe line system, with headquarters at Tyler, Texas.

Mr. Straight, the president of the new company, is also vice-president of the Empire Companies at Bartlesville. Mr. Haskell, who is vice-president and manager of the new concern, is likewise connected with the Empire Companies at Bartlesville. F. A. Stivers, aside from his new duties as vice-president and general superintendent of the new company, serves as general superintendent of The Texas-Empire Pipe Line Company (Deleware), which operates a large pipe line system between the Seminole field, Oklahoma, and Chicago. Mr. Barton, one of the three vice-presidents of the new pipe line concern, is also vice-president of Tidal Refining Company. H. L. Stewart, the secretary-treasurer of the new company, also serves in that capacity for both The Texas Pipe Line Company of Oklahoma and The Texas-Empire Pipe Line Company (Deleware).

While the 12-inch trunk line of The Texas-Empire Pipe Line Company of Texas from East Texas to tidewater is equipped with six pump stations which afford operating capacity of approximately 75,000 barrels daily, there is not sufficient crude available for operating the system at full capacity with the production of the East Texas field curtailed under the existing conservation order. During the early period of its operation the new carrier is expected to handle around 40,000 to 45,000 barrels daily.

The system will be operated only as a trunk line system during the immediate future, no gathering system having been built or contemplated. For the line traverses much of the length of the field, and a considerable number of existing gathering systems may readily be connected with it, including those of Tidal Refining Company, Cities Serv-

Scene along the new 12-inch line of The Texas-Empire Pipe Line Company of Texas from the East Texas field to tidewater. The picture was taken near Sour Lake, Texas, and is characteristic of the timbered and underbrush covered country which was common along the southern portions of the route.

ice interests and The Texas Pipe Line Company, with which the new pipe line company is affiliated.

Although holding a smaller interest in the pipe line than the other two owners, Tidewater Oil Company of New Jersey through subsidiaries will make greater use of its facilities during the immediate future at least. For Tidal Refining Company, refining and purchasing unit, has fortified itself with somewhat more than 100 connections in the East Texas field, including about 60 producing wells of its sister producing concern, Tidal Oil Company. These connections make available for the Tidal interests about 20,000 barrels of East Texas crude daily under the present conservation program allowing 185 barrels production daily per well.

The Texas Corporation and Cities Service Oil Company through their subsidiaries are each anticipating moving from 10,000 to 15,000 barrels of East Texas oil daily through the new carrier. The Texas Company, subsidiary of the former, is not only an important producer in the field, but is also a purchaser. It already had available large transportation facilities, however, by virtue of The Texas Pipe Line Company, an affiliated concern, having entered the field early with a 10-inch carrier which has 55,000 barrels daily capacity.

The Cities Service interests are represented among the producers in the East Texas field by Arkansas Fuel Oil Company, which has extensive proven properties, particularly in the Longview district; by Empire Gas & Fuel Company; and by Warner-Quinlan Company of Texas and Texas Unity Oil Company. The two latter concerns have extensive producing properties in the Joiner district. They passed into control of Cities Service Oil Company (the Henry L. Doherty interests) some months ago when the latter acquired large holdings of their common stock.

The Cities Service units have been served in the East Texas area since early May, 1931, by an eight-inch pipe line of 32,000 barrels daily capacity extending from the Longview district to Shreveport, Louisiana, the system being that of Arkansas Pipe Line Corporation. But the same interests have also been prominent users of tank car shipping facilities in East Texas during periods of heavy production in the field.

The rapid construction of the large East Texas carrier of The Texas-Empire Pipe Line Company of Texas constituted an outstanding achievement. The construction work was carried out under supervision of The Texas Pipe Line Company. Within three weeks after orders were placed for materials, all pipe, machinery and pumps had been delivered, and 42 days after orders were placed oil was actually going into the line. The system was entirely completed and in operation within seven weeks after the decision was made to build the line.

The first work toward clearing the right-of-way was done on August 8, 1931, first pipe arrived August 18, first pipe was strung August 18, and the first welding was done on August 21. Eight complete construction crews were employed in laying the line, contracts for the work having been awarded to three separate companies, Gregg Construction Company of Longview, Texas; Apex Construction Company of Lufkin, Texas; and N. A. Saigh Company of San Antonio. The six pump stations which will serve the system are equipped with centrifugal pumps driven through speed-increasing herringbone gears by Diesel engines.

Atlantic's East Texas Line Pumps First Oil October 3

Longview, Texas.—Pumping of first oil into Atlantic Pipe Line Company's 181½-mile, 10-inch welded trunk line, extending from main field station and tank farm in southern Gregg County to tanker terminals at Atreco, near Beaumont, on the morning of October 3 marked the conclusion of all major pipe line projects scheduled for the East Texas field. This line, with its two stations in operation, will have a capacity of 30,000 barrels daily, according to R. W. Howe, vice-president and general manager of the company. Earlier in the week The Texas-Empire Pipe Line Company of Texas made initial crude runs through its 206-mile, 12-inch carrier, extending from the East Texas field to Port Arthur, thereby adding 75,000 barrels direct outlet for the field. Placing of these two lines in operation boosts the total trunk line outlet for the East Texas field to 700,000 barrels daily from 18 separate outlets, which are owned by 12 separate concerns, or groups.

Pending completion of equipment installation at its two stations, Atlantic Pipe Line Company is pumping about 19,000 barrels of crude daily through its line, with only one motor-driven centrifugal pumping unit in operation at the main field station. The latter is located on the Horton & Dickson 70-acre site, John W. Whitten Survey, Gregg County, and on a line between Longview and Kilgore.

Direct trunk line outlet for the East Texas oil field was slated to be 800,000 barrels daily, but Magnolia Pipe Line Company and Sinclair-Texas Pipe Line Company each cancelled a 30,000-barrel daily increase in the capacities of their 12-inch carriers because of proration enforcement, although work was well under way on the intermediate stations that would have boosted each of these units from 60,000 to 90,000 barrels daily. The Texas-Independent Pipe Line Company was scheduled to add 40,000 barrels daily outlet to the field with a trunk line to the Gulf Coast, but cancelled the project after having placed tentative orders for materials and completed survey work on a large portion of the right of way.

Personal Mention—Men You Know

▼ ▼ ▼

HARRY BENGE CROZIER, Dallas, Texas, has been appointed director of the American Petroleum Institute's Department of Public Relations. He succeeds Leonard M. Fanning, who resigned to enter the publishing business after three years as director of the department and previous service with the Institute's Department of Statistics.

—Blank Stoller

H. B. CROZIER

Mr. Crozier, who assumed his new duties September 28, has been engaged in newspaper, magazine and public relations work in the Southwest since 1913. From 1913 until he entered the army in 1918 he was on the staff of the Galveston-Dallas News, and upon his return to civil life joined the staff of the Dallas News, serving as reporter, city editor and staff correspondent.

In 1924 he aided in organizing initial efforts to formulate plans for the Texas Centennial Celebration, to be held in 1936. For several years he was editor of "The Cattleman" and public relations counsel for the Texas and Southwestern Cattle Raisers' Association. He returned to Dallas News staff late in 1928.

Since 1913 Mr. Crozier has covered, as a newspaper correspondent, all sessions of the Texas legislature with the exception of those during the war. He has also observed and written of the discovery and development of all new Texas oil fields during the past decade. A native of Paint Rock, Texas, he is married and has one son. His family will join him shortly in New York.

Mr. Fanning, former director of the department, now is engaged in editing and publishing at Room 440, 122 East 42nd Street, New York, a new petroleum reference annual and buyers' guide to be known as the "Petroleum Code Handbook." It will register marketers, jobbers and dealers in petroleum products in all states and is designed for serviceable use by sales executives, owners and operators of service stations. It will contain also considerable material on the Code of Marketing Practices and on Code Committee personnel and work. Publication date of the "Handbook" has been set for early in 1932.

WALTER E. HOPPER has resigned as president and director of Southern States Company of Shreveport, Louisiana.

E. H. ADAMS, recently with Western Pipe and Steel Company as salesman for Trumble gas traps, has severed his connections with the company and is now in charge of sales for Olancha Mineral Producing Company, an organization which manufacturers and markets rotary drilling mud.

CLIFFORD S. WILSON, petroleum engineer for Venezuelian Gulf Oil Company, has been spending a vacation in the United States.

L. W. HENRY, geologist for Standard Oil Company of California subsidiaries in South America, has returned to Maracaibo after a vacation in California.

H. D. COLSON, head of Victor Oil Company of California, died recently after a short illness. He had been active in Kern County operations for a generation and helped to develop a part of the Midway district.

ERNEST L. NEWMAN has been made superintendent of The Texas-Empire Pipe Line Company of Texas, the company which has been formed by The Texas Corporation, Empire Gas & Fuel Company (Cities Service interests) and Tidewater Oil Company of New Jersey, to operate their recently completed 206-mile 12-inch trunk line from the East Texas field to the Gulf Coast.

Mr. Newman will maintain headquarters at Tyler, Texas, and will have offices at Nettleton in the Gladewater district of the large East Texas oil field. The pipe line system of The Texas-Empire Pipe Line Company extends from Nettleton pump station near Camps, Texas, to Port Arthur, Texas. Before assuming his new duties Mr. Newman was district foreman of The Texas Pipe Line Company in the Darst Creek area, with headquarters at Sullivan, Texas.

Mr. Newman is married and has three children. He was born October 12, 1887, at Bryan, Texas. From 1903 to 1906 he was employed as bookkeeper by Friedman Brothers, Brooklyn, New York. From 1906 to 1912 he was employed in various capacities from driller to assistant manager at Saratoga and Batson, Texas, by Rio Bravo Oil Company, Daley Oil Company, International Oil Company, and E. G. Christian & Company.

He entered the services of The Texas Company January 4, 1912, at Sour Lake, Texas, as loading rackman and served in various capacities with The Texas Company and The Texas Pipe Line Company as fireman, engineer, gauger, and district gauger until December 1, 1921, when he was promoted to district foreman with headquarters at West Columbia, Texas.

ERNEST L. NEWMAN

Early in 1929 he was actively in charge of construction work on a portion of The Texas Pipe Line Company's West Texas to Houston 12-inch pipe line, and on September 1, 1929, he was transferred to the active Darst Creek area in South Texas. Effective October 1, 1931, he was chosen as superintendent of The Texas-Empire Pipe Line Company of Texas.

PERSONAL MENTION—MEN YOU KNOW

H. R. DICKERSON, general superintendent of Arkansas Natural Gas Corporation, within the comparatively brief space of 20 years, has risen to his present position from the job of a pumper. His first association with the gas industry was in 1911, since which time he has been in order: pumper, driller, lease foreman, pipe line foreman and now, general superintendent of his company, a Cities Service subsidiary.

H. R. Dickerson

At different times he has been connected in various capacities with The Texas Company, Gulf Refining Company, Louisiana Oil Refining Corporation, and Standard Oil Company of Louisiana.

In 1921 he went to Arkansas Natural Gas Corporation to take charge of Natural Gas and Petroleum Corporation, being still with that company when it was taken over by the Doherty interests and its name changed to Natural Gas and Fuel Corporation. Later he was made general superintendent of operations for Arkansas Natural Gas Corporation.

He is vice president of the majority of Arkansas Natural Gas Corporation's subsidiary companies and is regarded as one of the leading oil and gas men in the Louisiana-Arkansas-Mississippi territory.

R. L. HALL, formerly in charge of the foreign department for Richland Oil Company of California, has incorporated Hall Export Corporation, with offices in the Bartlett building, Los Angeles. He left the latter part of September for the Orient on an extended business trip.

R. V. WHETSEL, European manager of Henry L. Doherty interests, sailed from New York on the last trip of the Europa, returning to Paris after three weeks in the United States.

W. M. FULTON, president, Fulton Oil Corporation, the Fulton Industries, Inc., and other Montana companies, and interests largely in the development of carbon dioxide gas properties in Colorado, is in a Great Falls hospital with both legs fractured as the result of an automobile accident which occurred on a highway out of Great Falls. It was reported that Mr. Fulton's condition is doubly serious because of internal injuries he sustained at the same time.

ROBERT D. HAWLEY, general counsel for Continental Oil Company with Denver offices, died at his home in Denver, September 30, following a week's illness arising from an attack of measles. He was 41 years old. The deceased was widely known throughout the Rocky Mountain states and his untimely death brought grief to a large circle of close friends and business associates. He is survived by his widow and their one son.

R. R. IRWIN, president White Eagle Oil Corporation, with headquarters in Kansas City, visited his company's Casper offices and refinery last week.

D. R. BROWN, vice president and general manager of O. C. S. Manufacturing Company, Coffeyville, Kansas, visited the new Greasewood Lakes field in northeastern Colorado, last week.

C. S JONES, vice president of Rio Grande Oil Company, has returned to Los Angeles, following a business trip to New York City. His absence was in connection with the proposed merger between his company and Sinclair Consolidated Oil Corporation.

L. S. ALLEN of Naylor Pipe Company has returned to Tulsa after a short business trip to the West Coast which included stops at Los Angeles and other points. He made the journey by plane.

A. V. WADSWORTH, vice presdient of Westcoff Valve Company, has been elected a member of the board of directors of East St. Louis Chamber of Commerce. Mr. Wadsworth is also in charge of the unemployment relief committee in East St. Louis, Illinois.

W. B. RAWSON, sales engineer for Maintenance Engineering Corporation, 1400-2 Conti Street, Houston, Texas, is now in Mexico on a business trip covering Tampico and Mexico City.

F. BISHOP, assistant superintendent of production for Burma Oil Company in the Yenang Yaung district of Upper Burma, India, was a Tulsa visitor during the past week. Mr. Bishop left Burma on July 8, 1931, for an inspection trip through fields of the United States. He has just completed a tour of the fields in Michigan and from Tulsa will go to the Oklahoma City pool, the Orchard field in Colorado, and on to the Pacific Coast. He expects to return to Burma about March 1, 1932.

The elephant shown in the picture was killed by Bishop on a recent hunting trip in company with fellow employees. A double-barreled English made rifle did the job and appears to have done it well from the position in which the big fellow fell.

F. Bishop
Assistant Superintendent, Burma Oil Company

East Texas Operators Plan Repressuring With Residue Gas From Gasoline Plants

TYLER, Texas.—The East Texas oil field will retain its dominating position in the general crude market over a much longer period than ordinarily to be expected if success results from a popular movement among leading operators now gaining momentum to force the builders of natural gasoline plants to repressure the Woodbine sand with residue gas at cost to the operators. There are eight large plants projected for the field, including two nearing completion, and each is being allocated a tentative area to draw upon for casinghead gas, thereby eliminating duplication of expensive gas gathering systems, and also making it possible for all sections to profit equally from the repressure work. Property owners sponsoring the repressuring program are not in accord as to when this return of residue gas to the producing horizon should begin, as many are reluctant to share the cost of equipment needed to buck a maximum of 1600 pounds of bottom-hole rock pressure now prevailing in some sections of the field, knowing that the pressure will subside shortly and then less effort will be consumed in recycling the gas.

Companies that are buliding, and those that propose natural gasoline plants are confident that proration enforcement is secure for the field, else a plant investment in this type of field would be a gamble to a certain extent. Casinghead gas yields about four gallons of net gasoline per 1000 cubic feet in this field, although the gross recovery is much greater. The field is believed to have a current output of approximately 160,000,000 cubic feet of gas daily from its 2200-odd completed oil wells. Rules of the Texas Railroad Commission restricts the gas-oil ratio to 500 cubic feet per barrel of oil. Such a ratio is above the average for the field under present proration restrictions, although many wells have built up a higher gas ratio since the military shut-down period from 7 a.m. August 17 to 7 a.m. September 5.

The porous nature of the producing horizon in the East Texas oil field affords ideal conditions for repressuring with gas, and the direct benefits to be realized from such operations would be increased oil recovery; retarding of salt water encroachment upon the Woodbine sand; and longer flowing life of wells. Advancement of salt water from the west upon the field has already taken place at scattered points, and will continue as production withdrawals are made from any given area in appreciable quantities. Return of the residue gas to the sand will have a tendency to slow down this water encroachment, especially since accurate data is now being compiled regularly as to the low pressure areas of the field through bottom-hole bomb tests. Any success met with in holding back the water table will enable operators to flow wells naturally over a longer period, and also greatly increase the potential oil recovery from leases directly in the path of the advancing water.

A number of informal gatherings have been held within the past two weeks by operators and prospective builders of natural gasoline plants in the field, including a session in Dallas October 1. The former group is insisting that contracts covering the sale of casinghead gas to plant owners provide for compulsory repressuring of the area supplying gas to such plants. The tentative arrangement will be for the property owners to join in bearing the cost of drilling necessary intake wells, which will be on property lines in order to benefit as many separate leases as possible. The plant owners will be required to install booster equipment and necessary distribution lines to return this gas, and the actual cost of operating such equipment will be borne equally by lease owners deriving benefits from the repressuring activity. In such instances where lease owners refuse to bear their proportionate share of the expense it is probable that no attempt will be made to force participation in the program.

Flowing wells in the East Texas oil field are expelling oil and gas production at a rock pressure ranging from 200 to 500 pounds, with the average showing a working pressure of about 300 pounds. Bottom hole tests on these wells range from 1200 to 1600 pounds pressure. The latter is considered a heavy pressure to counteract by many operators in introducing the repressuring program at this stage in the life of the field, as lower pressures are inevitable, and are using their influence to postpone the gas restoration feature. However, widespread repressuring of the field is assured for the near future, unless proration enforcement is thrown out by court action.

Humble Oil & Refining Company is nearing completion on the fisrt two natural gasoline plants in the field. The largest of the two plants is being built on the Laird land, I. Ruddle Survey, and in the original Kilgore area, while the other plant is located on the R. E. L. Silvey farm, T. J. Martin Survey, and due east of Overton. This company will not wait for an abatement in the bottom hole rock pressure of its wells, but will launch into a repressuring program as soon as equipment is available. Each of these plants will have a surplus of capacity over current gas supply of the owner, so outside gas will also be purchased and processed. These two plants were largely assembled from salvaged materials obtained through the junking of units in the Central West Texas district.

Indications are that a similar policy will be adhered to by others in building their East Texas plants, as each of the prospective builders have considerable serviceable equipment in warehouses and awaiting an attractive field to invade.

Shell Petroleum Corporation is contemplating the erection of either a 30,000-gallon capacity plant to be located immediately north of the railroad in the Kilgore area to operate on controlled gas production, else make it a 50,000 gallons daily capacity and attempt to serve all operators in a given area. Magnolia Petroleum Company is expected to authorize the erection of a large plant in the Kilgore section of the field, but probably west of the above company's tentative site.

Roeser-Pendleton, Inc., has tentatively selected a site in the Longview area for a plant that will be moved from the Cook Ranch shallow pool in Central West Texas, as this particular plant has been inactive for more than a year because of proration enforcement cutting down the gas supply of the field to a volume that the company's other plant is now more than adequate. Stanolind Oil & Gas Company is making gas contracts with a view of installing a large plant in the Gladewater section of Gregg County, and Phillips Petroleum Company is also a prospective builder of a large plant in the county. Empire Gas & Fuel Company, or the Arkansas Natural Gas Company, both Henry L. Doherty interests, will erect a plant in the northeast portion of the Longview area to include the large block of leases held by Arkansas Fuel Oil Company in the Wm. Robinson, D. Sanches and other nearby surveys.

A uniform price scale is being adopted by the companies soliciting contracts for processing casinghead gas, and the per

(*Continued on page* 63)

Oklahoma--Kansas Field Notes

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

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Oklahoma City Activities Are Completely Curtailed

Oklahoma City.—If the lid has been on in the Oklahoma City pool since martial law went into effect on August 5, 1931, it might be said that Cicero I. Murray put in additional screws, when on Thursday, October 1, he announced that no completions would be permitted, and that operators would not be allowed to complete eight-hour potential gauges provided for in the last corporation commission order. The 21 wells drilling on Saturday probably will go to the sand, set casing and await further developments at the state house. It is doubtful that any new locations or starts will be made in the meantime and when the wells now drilling have cemented final casing strings, Oklahoma City probably will be without an active rig. However, there is a possibility that the pool will be opened by October 15 and in this event some new work is expected in the northern and southwestern portions of the pool.

Under the new order only wells listed as gas producers by the corporation commission will be allowed to produce. Stringency of the rules was forceably illustrated when Saturday morning's gauge showed only 555 barrels from six wells, the lowest production figure that has been reported since martial law went into effect. Of this amount 26 barrels was pick-up oil from one well. Total production for the week was 143,950 barrels, a daily average of 20,560 barrels. This is the highest daily average under martial law and resulted from the taking of eight-hour potential gauges on a number of wells completed several weeks ago. The Slick interests, who sold 250,000 barrels under contract to deliver over a short period, had six wells taking the remaining portions of the allowable eight-hour flow. Pipe line runs totalled 227,310 barrels for the week ending Saturday morning, October 3, for a daily average of 32,473 barrels. This large increase in movement was due to two major sales by Slick interests and British-American Oil Company. Saturday's tickets show that Champlin Refining Company ran 2787 barrels, Empire Pipe Line Company, 1181 barrels, Shell Pipe Line Company 2210 barrels, and Sinclair Pipe Line Company 5706 barrels.

Ellsworth Arch Activity During 1931 Is Unusual

Wichita, Kansas.—Activity during 1931 on the Ellsworth Arch in western Rice and Ellsworth Counties has been surprising in view of the fact that no pipe lines have entered the area and all wells so far completed have been shut in with no outlet.

Geological and geophysical work done in 1926 and subsequent years indicated favorable structure and the first test of any consequence was drilled by Phillips Petroleum Company on its Wrightsman farm, CSW Section 3-16s-8w, near the center of Ellsworth County. This test resulted in a dry hole, being abandoned at 4445 feet on November 3, 1926. Interest was centered in the general area when Steinbushel et al, completed their Schurr 1, NEC SW Section 21-20s-10w, in what later became known as the Schurr-Raymond pool in the southwestern portion of Rice County. This well was reported good for 2000 barrels initially. By the end of 1930, 11 wells had been completed in the Schurr-Raymond pool, ranging in size from 45 to 2000 barrels on initial gauges.

The area northeast of Schurr came into prominence on July 21, 1930, when Tatlock et al completed their Ploog 1, CSW SE Section 33-18s-9w, located on a 10,240-acre block owned by Shell Petroleum Corporation, Empire Oil & Refining Company, Carter Oil Company, J. A. Hull Company, and J. H. Tatlock. It produced 383 barrels of 48.6 degree oil the first 12 hours. Since that time seven scattered wells have been completed on the Arch, Ainsworth et al, Heiken 1, NWc Section 25-17s-10w, is the largest with an initial production of 2000 barrels from a total depth of 3243 feet.

Williams, Moore et al are moving in a rig for their Stratman 1, CSW SE Section 23-16s-10w, approximately one mile east of Palmer and Gypsy Oil Company's Stoggenberg 1, CSW Section 22, which was completed on June 27, 1931, at an estimated 1200 barrels initial.

Oklahoma's Flush Fields May Be Opened October 15

Tulsa.—Oklahoma operators are marking time pending outcome of serious efforts now being made to induce the opening of flush fields which have been shut in under martial law since August 5. Independent refineries in many parts of the state are shut down and will remain so until substantial production is permitted in the Oklahoma City and Seminole pools.

Orders of last week, issued by Cicero I. Murray, appointed in charge of the shut-down by his cousin, Governor William H. Murray, forbids the completion of wells, taking of initial production for establishing potentials, and transportation or moving of crude after nightfall. Elimination of the eight-hour initial flow period for Oklahoma City wells, removes the last chance of refineries to secure substantial amounts of oil other than purchasing from crude stocks.

Stored oil in the Oklahoma City pool declined more than 50 per cent through sales by two of the larger independents. These contracts were said to have been made at the posted price even in face of the acute need for oil from that pool. The larger percentage of oil purchased under these sales went to Stanolind Crude Oil Purchasing Company and apparently none of it will reach independent refineries in Oklahoma.

Many operators now feel that the posted price of 62 cents for 36 gravity crude will enable them to produce the flush pools without sustaining losses but admit that only the flowing wells can be operated at this price. The present posting gives Oklahoma City oil a price of about 68 cents and the average Seminole crude brings 68 to 70 cents per barrel. Governor Murray has stuck by his original threat to close pools until such time as the general posting is $1.00 or better but in a recent statement to the press, Cicero I. Murray said that the governor originally stated that if the price of Oklahoma crude was not increased to $1.00 per barrel by Saturday, August 1, 1931, he would close the flush pools. This statement indicated that the governor was not bound by any threat to maintain the shut-down until the posted price is $1.00 although this is the

interpretation placed on statements made by him since the executive order went into effect.

The investigating committee appointed by the corporation commission on Friday, September 28, is now busy going over the mass of records in the umpire's office. These will be checked against production as reported to the state for tax purposes; and it is doubtful that the investigation can be completed in less than two weeks. It is believed that completion of this check will enable the operators' committee and the corporation commission to set a fair and equitable basis for opening the Oklahoma City pool, a problem which must be solved before such a move can be made. If no serious difficulties are encountered in the present investigation it is likely that Oklahoma flush fields will be partially opened by October 15.

Schurr Pool Comprising 11 Oil Wells, Opened October 2

Wichita, Kansas.—The Schurr pool in southwestern Rice County, was opened Friday, October 2, by order of the Kansas Public Service Commission. After hearing several witnesses, representing land owners and producers, Thurman Hill, oil member of the commission, made the following announcement:

"The 11 wells of the Schurr area will be permitted to open October 2, with a production of 100 barrels a day each. After October 15, tests will be made to establish the potential production of each well. After November 15, each well will be permitted to produce 15 per cent of its potential, the same ratio now being imposed in other Kansas prorated fields."

The Schurr pool came in August 5, 1929, when Steinbushel et al completed their Schurr 1, NEc SW Section 21-20s-10w. During the early part of 1930 Independent Oil & Gas Company removed some oil from the area by tank cars. This purchaser withdrew in July, 1930, and the pool was without an outlet until December of that year, when Prairie Pipe Line Company completed its eight-inch line from the Voshell pool. By that time 11 wells had been completed and Prairie Pipe Line Company started taking 550 barrels a day or 50 barrels per well. This continued only until January 1, 1931, when that company withdrew as a general purchaser of Mid-Continent crude. The pool has been shut in since that time.

September Drilling Activity in Oklahoma and Kansas Unchanged

Tulsa.—Drilling reports at the end of September show no appreciable change over those of the preceeding month. Oklahoma, with a total of 273 operations including drilling and shut-down wells, rigs and locations, has 91 wells actually drilling and 137 shut down.

Operations in Kansas total 119, with 50 drilling wells, 45 shut down, 14 rigs, and 10 locations. There are now a total of 25 wildcat tests drilling in the two states, 14 being in Oklahoma.

Real activity in both states is limited principally to two pools. In Kansas the larger percentage is in the Ritz-Decker-Garrett area in eastern McPherson County.

Oklahoma City, with about 20 drilling wells, leads that state for one field and a majority of the remaining 71 tests are in northeastern and eastern counties.

Seminole, Okla.—Sinclair Oil and Gas Company is cleaning out at 4230 feet in its Bellaire 2, NWc NE NE Section 19-8n-5e, in the southern edge of the Maud pool. Having reached its economic limit at the original total depth of 4128 feet the well is due for abandonment in event no deeper production is found. This is the only active test in the Seminole district.

Southern Oklahoma Remains Inactive With No Locations

Ardmore, Oklahoma. — Southern Oklahoma remained quiet during the week. No new locations were reported and drilling reports were routine.

The Tatums pool, in northwestern Carter County, passed a full month without an active location and it is doubtful that any new work will be initiated until some action is taken in regard to martial law.

Drilling is restricted to a few scattered wildcats in Stephens County, an interesting Wilcox or Simpson test six miles north of the town of Davis in the Arbuckle Mountain region, and to shallow development in the Kingston pool in Marshall County.

J. L. Dixon et al were shut down for odrers at their McDuffee 1, SW NE SW Section 3-7s-6e, wildcat test four miles southeast of Kingston in Marshall County. Total depth is 872 feet, approximately 200 feet below the average depth at which production is found in the Kingston shallow and Madill areas. A high lubricating stock crude is found in the former area. M. A. Neff et al have staked location for their M. H. Rice 1, SE SE SE Section 10-5s-5e, north of production in the Madill field. Production obtained in this area runs high in gasoline stock and it is not uncommon to see wells pumped by small gasoline engines burning the oil as it comes from the well. Gravities run as high as 52 degrees with initial production ranging from a few barrels to as much as 350 barrels.

Love County

Batson, Starritt, and Autry were still shut down at their Dr. Autry 2, SE NE Section 27-6s-2e, wildcat test about seven miles northeast of Marietta in Love County. Operators expect to install pumping equipment to test sands logged between 1623 and 1634 feet. This test is of interest because of its location directly southeast of the Brock trend where oil is obtained from a Pennsylvanian structure which can be traced at the surface. The altitude of the Pennsylvanian beds cannot to traced in Love County except in a small area where the overlying Cretaceous has been removed. Small showings of oil and gas have been encountered in several tests at depths ranging from 1500 to 1650 feet. These showings cannot be definitely correlated but are known to be from the underlying Pennsylvanian series.

Tidal Sells Stripper Leases In Rogers and Nowata Counties

Tulsa.—The first major sale of stripper oil leases in many months was completed in Tulsa Friday, October 2, when Tidal Oil Company announced sale of all its smaller producing properties in Rogers and Nowata Counties. Howard Whitehill of Tulsa and Claud C. Harmon of Nowata are the new owners at a price reported to be in excess of $500,000. The transaction includes 1450 oil wells and 350 repressure wells on more than 200 separate leases. Included in the group is the famous Cherokee property, the first producing oil lease to be given by the United States government in what was then Indian Territory. Tidal Oil Company acquired a majority of the properties more than 20 years ago.

The wells are now producing about 1000 barrels daily but the new owners hope to be able through repressuring and reconditioning the wells to increase this by an appreciable amount. Under a five-year contract with Stanolind Crude Oil Purchasing Company, the operators are assured a steady market at prevailing prices.

News From California Fields

BRAD MILLS, ***Staff Representative, Los Angeles, California***

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Lost Hills Field Test May Open New Deep Zone

Bakersfield, Calif.—Lincoln Petroleum Company will survey Theta 1, deep test in the Lost Hills field, before attempting to complete the well at 5328 feet. A string of 4¾-inch casing was cemented at 5229 feet to test about 100 feet of good oil sand, reducing the hole to a size which may permit deeper drilling but which will make running of a smaller string impractical.

The oil sand cored below 5230 feet was the best yet found and the well stands a good chance of opening up a deep zone. This well was tested at various levels above 5000 feet, but failed to make more than gas and a trace of oil.

George F. Getty, Inc., started the well but turned it back to Lincoln Petroleum Company after a series of unsuccessful tests. Deeper drilling disclosed promising oil sand. There is still a possibility, however, that deeper drilling may be necessary to find a producing zone. Some geologists believe that the producing zone will be found below 6000 feet, but the fact that the shale body found at Kettleman Hills is present at a shallower level at Lost Hills makes this theory questionable.

The Lost Hills field lies exactly in line with the South Dome at Kettleman Hills and seems to bear more connection with it than the South Dome bears to the North Dome. The field stands a good chance to produce in the Temblor, judging from the action of the formation in the North Belridge field, but this zone may prove disappointing in fields which look best from the surface.

Continental Opens New Field in Ventura County

Ventura, Calif.—Continental Oil Company has definitely opened up a new oil field in Ventura County, about three miles west of Ventura Avenue and 2½ miles east of Rincon, the company's Grubb 1 having produced for a short time at a rate which insures a commercial yield. This well really shares honors with Chanslor-Canfield Midway Oil Company's Hobson A2, which produced about 200 barrels on the compressor more than a year ago, but it may go on record as the discovery well, since Hobson A2 has not produced satisfactorily since being plugged back after establishing a new depth record at 10,030 feet.

Grubb 1 was drilled to 6640 feet and a string of 9⅝-inch casing cemented at 6472 feet. The well was swabbed to 3600 feet at a water shut-off test. The tubing bridged at 5000 feet, but after pulling this small flow string the well started flowing oil and water at a good rate. This flow continued for more than an hour, but no official production test was made. This showing was better than expected on such a test, although a good body of oil sand was cored below the shut-off. The hole was cleaned out to bottom and a liner will be run for a regular production test. The oil was about 30 gravity, and was free from water. The gas pressure was enough to indicate a steady flow, but only an actual test will prove the behavior of the well over a longer period of time. The water shut-off was approved.

The new field lies roughly midway between the western extremity of the Ventura Avenue field and the eastern edge of the Rincon field and in a very rugged district. Grubb 1 is about 15,000 feet from nearest production at Ventura Avenue and somewhat nearer to production in the Rincon field. Geologists differ on the importance of the discovery, some claiming that it opens a new field and others expressing the belief that the area is a continuation of the Ventura Avenue field. The best geological advice leans toward the theory that a small new field has been found and that a continuation of Ventura Avenue would mean a much greater depth than that from which Grubb 1 is producing. The limited amount of development of the structure points to a small anticline which may or may not be a large producer.

The action of Chanslor-Canfield Midway Oil Company's Hobson A2 at 7479 feet gives the new field a very doubtful appearance, but this well may have been located on the edge of the structure. It is about 3000 feet from Grubb 1, the latter having found the best oil sand considerably above the most promising depth in Hobson A2. The district originally seemed to hold some connection with the Rincon field, but definite correlation was not convincing.

The new field will lie between two producing fields of opposite characteristics. Ventura Avenue is perhaps the most perfect field yet found in California and has been a consistent producer at various depths below 4000 feet. The Rincon field represents the opposite extreme and has not been a profitable venture for the several operators. Both Grubb 1 and Hobson A2 are located in a very rugged district and the cost of road work, etc., has been very high. The immediate district is near the main state highway, the Southern Pacific railroad and the Pacific Ocean, however, and development will not be prohibitive. The leases are held in large blocks and intensive development is not expected. Conditions and the cost of drilling to such a depth will retard field work to the limit.

Middle Dome May Not Produce in Temblor

Coalinga, Calif.—It now looks as though the North Dome at Kettleman Hills may be the only one of the three domes to produce oil from the Temblor, although it is too early definitely to eliminate the Middle Dome from the producing class. Developments during the week were unfavorable on the Middle Dome, but the worst that can be said does not eliminate this part of the structure until deeper drilling supports mere theory. The maximum potential producing acreage on the Middle Dome is around 3000 acres, a much smaller total than already proved on the North Dome.

Petroleum Securities Company is coring at about 8300 feet in Burbank 1, the deepest Middle Dome test, but the gray sand gives only faint cuts. A slight gasoline odor is considered significant, showing a slight resemblance to cores taken in the Temblor on the North Dome. With the 8⅝-inch shut-off at 7326 feet, such a depth makes the formation appear very questionable.

In making estimates for economic reasons, the Middle Dome has been considered as perhaps as rich per acre as

the North Dome. Most recent developments tend to disprove this theory. The Middle Dome may prove to lie down the slope from the crest of the North Dome and may not produce at all.

Standard Oil Company is drilling around 6000 feet in No. 6-29V, a Middle Dome test which offsets Burbank 1. This well is being drilled under pressure and is passing through a tough water formation in good condition.

North American Consolidated Oil Company is drilling at 8775 feet in Blauvelt 1, North Dome edge test which will go a long way toward determining the producing limits of the field on the east edge. This well found the Temblor formation at 8505 feet and will be completed to establish a new record depth, if productive. The top of the Temblor is running true to form and shows only a slight cut. A complete water shut-off was a favorable indication and no water has been found below the record 8⅝-inch string at 8485 feet. The company's Elsinore 1, located more favorably on structure than Blauvelt 1, is drilling at 7100 feet and should find the Temblor above 8000 feet. This well is a more direct offset to Shell Oil Company's Dixon 1, which was a 6000-barrel completion at 8807 feet.

Standard Oil Company has succeeded in redrilling to bottom in No. 65-29J, a North Dome test which has met with a series of mishaps at various levels. The well will be completed at the present depth of 7885 feet. The nine-inch shut-off was made at 6850 feet, but only a limited amount of Temblor will be included. The task of getting the well in shape for any form of completion has been so trying that deeper drilling will not be attempted. This well is an offset to Superior Oil Company's Huffman producers and is the only well started by Standard Oil Company that has caused more than ordinary trouble.

Kettleman North Dome Association is drilling six wells on the North Dome but will make no attempt to enter into an offsetting campaign. Field work is well under control and drilling may decline, rather than increase, during the remainder of the year.

Midway-Sunset District May See New Shallow Development

Taft, Calif.—The Midway-Sunset district, for several years a quiet area, has almost completely given away to the younger and more aggressive fields. Until two years ago several scattering tests were under way in various parts of the Midway-Sunset district. Good wells were completed on leases which had escaped intensive development, but the average gravity of the oil was low.

The Maricopa extension stimulated activity for more than a year, but this part of the field has also fallen in the inactive class. Very few sections of the vast area produce light oil.

Efforts to extend the Midway field were made two and three years ago, but nothing of a sensational nature developed. As conditions grew worse, the demand for heavy oil was extremely slack and field work finally succumbed. A trip through the district reveals miles of derricks and hundreds of pumping wells; but the absence of drilling wells offers a distinct contrast to better days. Several of the larger operators have reduced their field forces to a minimum and are concentrating on the Kettleman Hills field. A decline in the state potential to a level which demands more oil will certainly result in increased drilling on leases where a fair production is assured. The Midway-Sunset district offers such a possibility and the shallow leases will be further developed when the flush fields decline to a lower level.

Potrero Townlot Well's Water Cut Increasing

Los Angeles.—The water cut in Beloil Corporation's Coffin 1, recently completed as a good producer at 6509 feet in the Potrero townlot sector, is increasing and the well shows signs of going the same route other shallower discovery wells have gone. It is possible that the water is coming from around the shoe of the shut-off string, and if such proves to be the case the well may be saved as a clean producer. The cut has increased to 22 per cent, with a total production of less than 500 barrels.

Periodically in the past thin producing zones have been found in the townlot section, and each time a rush has followed a completion. All of the upper formations are badly folded or faulted and seem to rise and fall irregularly. Some of the shallower wells were apparently completed to include a zone which curved upward to allow drilling a good distance in a thin sand.

Such a completion has declined rapidly and has been followed by several less fortunate completions. Several wells are being rushed to the 6500-foot level and one has been tested at 6309 feet.

Activity in this part of the field has risen and fallen with each completion that opened a new zone. Conditions are now such that the rush has been of much smaller proportions than those of the past.

Seal Beach Well Producing 30 Barrels From 9054 Feet

Los Angeles, Calif.—Continental Oil Company's McGrath-Selover 1, deep test in the Seal Beach field, is producing 30 barrels of 30 gravity oil per day from a depth of 9054 feet and is technically the deepest producer in the world. It can not claim the honor, however, on the present basis, since such a small production at this depth is not considered commercial. The well is being pumped and may be developed into a commercial producer. The oil shows a negligible cut and the fluid level points toward a slightly better yield under more favorable conditions. A string of 6⅝-inch casing was cemented at 8122 feet.

The Seal Beach field has produced from various levels below 4400 feet and was a sensation during the early part of 1927. The townlot sector was rapidly developed and failed to prove profitable for the many small operators who rushed into the field. The conservatively developed district is controlled by Standard Oil Company, Associated Oil Company and Continental Oil Company and has a remarkable producing record. The extremely deep zone does not seem to hold wide possibilities, the importance of the completion lying more in the achievement of a new depth record than in the size of the yield.

Midway District Test Is Offset to Discovery Well

Taft, Calif.—Republic Petroleum Company has made location for No. 25A in the Midway district and attempt to replace the production lost through mechanical troubles in the discovery well. The location is on Section 8-32-23 and is a direct offset to No. 25, the discovery well which became famous as a good producer in a new deep zone.

Three years ago this company became active on this section and started activity on the part of other operators. A few good wells were completed in the immediate district, but interest waned when production became unsteady. The first well was completed around 2800 feet and was one of the most important completions in the district for the year.

New Mexico and Rocky Mountain Area

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Greasewood Lakes Structure Proven for Oil at 6664 Feet

Denver, Colo.—More proof of the commercial possibilities of the new Greasewood Lakes structure in Northeastern Colorado was established last week when Continental Oil Company drilled in its first well, Briggs 1, on SE SW 13-6n-61, Weld County, and gauged a production of 904 barrels per day from a total depth of 6664 feet. It is a much better producer than the first two completions in the field, but at the same time it is considerably deeper in the producing sand.

When the Briggs well was drilled in, moreover, the discovery well stopped producing and production immediately stopped altogether in the second completion in the field, Rieter-Foster Oil Corporation's well. Since there is no water whatever with the production in this field, it is assumed that the lessened gas pressure is to blame for the decrease.

The new well is an extension to the north about a mile. Interest now centers in the Reiter-Foster Oil Corporation's Johnson-Juhl 1, a mile west of the Continental Oil Company's Briggs 1, and the same company's Gadbois 1, a mile to the south. Both will be early completions.

Other wells drilling in Morgan and Wells Counties are reported in detail in the Colorado wildcats in this issue.

On the Fort Morgan structure, north of the town of Morgan, Indian Territory Illuminating Oil Company's test drilled through the Muddy sand (producing on Greasewood) and found it dry. Well is to be drilled deeper to the Dakota and Lakota.

It is estimated that all of 3,000,000 acres of land are now under lease in this part of Colorado. Major companies holding acreage include Continental Oil Company, Reiter-Foster Oil Corporation, Cities Service Oil Company, Platte Valley Petroleum Company, Ohio Oil Company, Midwest Refining Company, The Texas Company, Prairie Oil & Gas Company, The California Company, Magnolia Petroleum Company, and others.

Three Tests Are Started on East Flank of Hobbs Field

Hobbs, N. M.—Starting up of a trio of tests on the east flank of the Hobbs field and adjacent to the townsite of Hobbs is affording the field its first activity of any consequence within the past four months.

Continental Oil Company's State 4-B, located 1920 feet from the south and 1960 feet from the east lines of Section 33-18s-38e, has been spudded, and Gypsy Oil Company's W. D. Grimes 1, an east offset, is ready to spud. Midwest Refining Company's E. H. Byers 8, C of NW NW Section 3-19s-38e, is also ready to commence drilling. The latter company's Turner 29, a producer located at the C of Section 34-18s-38e, necessitated the drilling of these tests, having been completed in January, but development work was postponed because of the crude price being at a low level.

The above tests are on proven acreage, and when completed will probably force Midwest Refining Company to drill two more and Continental Oil Company one in taking care of direct offsets.

Berthoud Dome Discovery Is Considered Important

Denver, Colo.—An interesting development on Berthoud dome, 45 miles north of Denver, is the discovery by Raddatz-Travis Syndicate of Salt Lake City of a production of considerable importance in the Muddy sand at 3777 feet, only five feet in the pay. The well made several sensational flows, one head having gauged 50 barrels; however, when hooked up to the flow tank it ceased to produce naturally. About 1,000,000 cubic feet of gas came along with the oil, with rock pressure at 1200 pounds.

Report Test Being Planned For Cane Creek Dome, Utah

Moab, Utah.—It is reported that a group of well known Salt Lake City business men has organized a company for the purpose of drilling a test on Cane Creek dome, 12 miles southwest of Moab, on the Colorado River, not far from the Frank Shafer well which gave such a sensational showing for a time several years ago, but which was never completed as a commercial producer. The well was drilled by Midwest Refining Company and associated interests, as was a second test which ended in the same difficulties as the first.

Osage Expansion Proves That Producing Sand Lies Southwest

Osage, Wyo.—Another important extension to the Osage field, Eastern Wyoming, was proved last week by Riggs Oil Company of Jersey City, New Jersey, in its No. 1 well on Section SE NE 16-46-64 which has a hole full of oil bottomed at 3192 feet, waiting for storage and pipe line connections; oil is 49 gravity. The well not only points the way for the extension of the field, but proves that producing sands lie deeper to the southwest, the dip being 1100 feet in one mile. It is believed that the production is coming from a new terrace.

Portland, Ore.—It is reliably reported here that the Moody-Seagraves interests of Texas are becoming active in the western part of Oregon in the vicinity of Dallas and Albany. The company is reported to have acquired some 70,000 acres of leases from Dorsey Hager, well known Seattle geologist, located in areas in the northwestern part of the state.

Lusk, Wyo.—Franchise for natural gas distribution system in Lusk, Eastern Wyoming, has been forfeited by C. Frank Bautch and his associates because they were unable to finance the proposition. The project was one to bring natural gas to the town from Ohio Oil Company's wells in the Lance Creek field.

Payette, Idaho.—R. J. Berry and associates (Ohio Oil Company) are rigging up for rotary test on the Crystal Dome structure, B. P. Kramlich 1, Section 5-9n-4w, in Washington County, Idaho, for a test to a gas-producing sand indicated in a well drilled a year ago on the structure.

East Central Texas Field Notes

H. H. KING, ***Staff Representative, Fort Worth, Texas***

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East Texas' Second Year Opens With Record Activity

Longview, Texas.—Having rounded out its first year as a prolific source of high gravity production on October 3, the East Texas oil field started off its second year with field activity at a new record level, with a total of 780 operations listed, exclusive of the more than 2200 completed oil wells. Staking of approximately 180 new locations during the past week accounted for the net gain of 41 operations during the seven-day period.

With few exceptions, the largest operators are gradually tapering off their development campaigns, but a revival of activity has been launched by companies and individuals that restrict their programs to one to four operations at a time, as evidenced by an analysis of the latest list of new locations.

Forced offsets are responsible for a large number of the current new locations, but many operators are proceeding to drill up their properties as far as possible to do so under the well-spacing rules of the railroad commission. Considerable pressure is being applied by operators in other fields of the state and also from the East Texas oil field to influence the commission in exercising its powers to curb unnecessary drilling. Fear that drilling permits may be more difficult to obtain in the future may be responsible for a portion of the increased activity in the East Texas field.

Some of the major companies that have publicly announced plans of making reductions in field work have made fewer locations during the past week, but in some instances it is because of having drilled up a large percentage of their holdings. Each of the three areas comprising the field gained in volume of activity during the past week, with the Longview area continuing to retain its leadership, with 327 operations listed, or a gain of 23 after absorbing usual weekly completions. The Longview area covers that portion of the field lying north of the Sabine River, and is now contributing the largest producers, as well as recording a much higher rock pressure than the two areas to the south.

Humble Oil & Refining Company's activity declined from 106 to 98 operations during the past week, but the company continues to set the pace for the field by a wide margin because of having about 14 per cent of the total acreage. Gulf Production Company and associates likewise registered a slight decrease in field work, having dropped off six operations making a total of 33 late last week. Sun Oil Company ranks third with 27 operations, while Yount-Lee Oil Company and Arkansas Fuel Oil Company have 25 operations each under way.

Magnolia Petroleum Company started the new week off with only 21 operations, or eight less than the previous week. This company is confining its entire program to direct offsets, and is drilling all wells with its own rotaries and crews. Humble Oil & Refining Company has 27 company owned rotaries at work on its leases, and plans to do all of its own drilling as soon as the volume of activity shrinks to a level that these rigs can handle the situation.

Operations East Texas Field

Most active companies operating in Gregg, Upshur, Rusk and Smith Counties, comprising the East Texas oil field, are listed below, with total operations held by each as of October 2, 1931:

Company—	Locations	Derricks & Rigs	Active Tests	Total Underway
Humble Oil & Refining Co.	10	43	45	98
Gulf Production Co. et al	4	8	21	33
Sun Oil Company	5	11	11	27
Tidal Oil Company	11	9	2	22
Magnolia Petroleum Co.	4	7	10	21
The Texas Company	4	11	7	22
Shell Petroleum Corp.	7	1	10	18
Yount-Lee Oil Company	7	11	7	25
Arkansas Fuel Oil Company	5	6	7	15
Empire Gas & Fuel Company	..	..	..	..
Atlantic Oil Prod. Co. et al	3	3	10	16
Stanolind O. & G. Co.	7	2	7	16
Stanolind-Simms Oil Co. et al	..	3	4	7
H. L. Hunt et al	3	7	2	12
Mid-Kansas Oil & Gas Co.	2	4	7	13
Barnsdall Oil Co. et al	..	3	5	8
Golding-Murchison Oil Co.	1	3	5	9
Cal-Pet. Corp.	..	2	6	8
East Texas Refining Co. et al	..	2	3	5
Margay Oil Co.	..	..	4	4
Sinclair Oil & Gas Co.	3	4	3	10
Vacuum Oil Company	1	..	4	5
Total 22 companies	79	146	194	419
Miscellaneous companies	26	154	181	361
Total	105	300	375	780
Operations by Areas				
Longview	42	135	150	327
Joiner	28	90	116	234
Kilgore	35	75	109	219
Total	105	300	375	780

Expect Another Reduction In East Texas' Allowable

Tyler, Texas.—Another reduction in the daily allowable production of all wells in the East Texas oil field is expected to be ordered by the Texas Railroad Commission to be effective sometime during the coming week as result of the field having again exceeded the 400,000-barrel level. The field has been restricted to 185 barrels daily per well since 7 a. m. September 21, and prior to that date was allowed to produce a maximum of 225 barrels daily. Production for the week ending 7 a. m. September 30 averaged 378,737 barrels from 2160 completed wells, but completions have been appearing in greater numbers lately, with the total now well above the 2200 level.

The field's output climbed above the 400,000-barrel mark at the start of the current week, and will advance from 25,000 to 35,000 barrels by the middle of October based on present rate of completions and drilling, unless the allowance per well is cut in the meantime.

Staking of approximately 180 new locations in the field during the past week precludes any possibility of a sharp break in volume of field activity shortly. It is possible that the commission will make new attempts to discourage this

aggressive development work by trimming about 50 barrels off the daily allowance per well, as each cut in well allowance automatically tends to discourage unnecessary drilling, which has lately been expanded to include all inside locations possible by some of the companies.

Austin, Texas.—The attitude of C. V. Terrell, chairman of the Texas Railroad Commission indicates that there will be another cut in East Texas to bring the production of that field within the 400,000-barrel limit desired by the commission. It is probably that the reduction will be to 150 barrels from the present 185-barrel per well allowable. As Commissioners Smith and Neff are away from Austin, no action is expected on this matter before the beginning of the coming week. At that time, also, orders will probably be issued setting the allowable for the other oil fields of Texas on which a hearing was had last week.

East Texas Output Likely to Exceed 100 Million in 1931

Tyler, Texas.—Up to September 29, 1931, when it lacked a few days being one year old, the East Texas field had to its credit total oil recovery of 70,643,931 barrels, according to the weekly scout reports upon which estimates of the American Petroleum Institute are based.

Of that total only 21,952 barrels constituted 1930 production, the remaining 70,621,979 barrels having been produced during the first nine months of the calendar year 1931. If production for the remainder of this year averages 400,000 barrels daily, or about the amount which has been yielded under the existing conservation program, the 94 days from September 29 to the end of the year will run the total production for the calendar year of 1931 to 108,221,979 barrels.

The latter figure is cited for comparison with similar figures for other flush American fields at their peaks. Burkburnett in its peak calendar year of 1920 produced 29,890,000 barrels, or less than one-third of the amount which the East Texas field promises to produce in 1931. The peak year of production of the Crane-Upton County field, West Texas, in 1927, was a little more than at Burkburnett, amounting to 30,566,000 barrels. The Yates field, Pecos County, West Texas, which has been kept under strict proration, produced 22,111,000 barrels in 1928, when development commenced on a large scale, and in 1929 and 1930 yielded around 40,000,000 barrels per year. The Hendrick field, Winkler County, produced only 3,046,000 barrels in 1927, and then jumped to 57,502,000 barrels in 1928, its peak year, the latter figure representing somewhat more than one-half of the prospective 1931 output of the East Texas field.

Mexia and Powell are the outstanding examples of large recovery among fields of East Central Texas, both producing from the Woodbine sand, the productive horizon of the East Texas field. Like some of the above mentioned fields, Mexia and Powell each yielded in its peak year only about one-third of the anticipated output of the East Texas field during 1931, Mexia having produced 33,937,513 barrels in 1922 and Powell 32,976,381 barrels in 1924. The latter fields, of course, were developed before the dawn of the proration era.

Although the East Texas field's discovery well was completed on October 3, 1930, the area as pointed out above had produced only 21,952 barrels by the end of 1930. For two months after the beginning of the new year the production rose only gradually, and by March 1, 1931, the total recovery had reached only 880,062 barrels. Consequently, of the field's total production a very large percentage, 69,763,869 barrels, represents the output of the seven months period from March 1, 1931, to September 29. Allowing an average output of 400,000 barrels daily from now until next spring, the total recovery from the East Texas field for the one-year period from March 1, 1931, to March 1, 1932, would be over 131,000,000 barrels.

Production History of East Texas Field

Rusk, Gregg, Smith and Upshur Counties

Sabine River is taken as boundary between Longview and Kilgore districts, and the boundary between Kilgore and Joiner districts is a line extending due east from center of town of Overton.

	Joiner (Henderson)		Kilgore		Longview		Whole East Texas Field		
Week ending:	No. wells	Av. daily prod.	No. wells	Av. daily prod.	No. wells	Av. daily prod.	No. wells	Av. daily prod. bbls.	Weekly prod. bbls.
Nov. 12, 1930	1	185	...	....	...	....	1	185	1,295
November 19	1	183	...	....	...	....	1	183	1,281
November 26	1	176	...	....	...	....	1	176	1,232
December 3	1	184	...	....	...	....	1	184	1,288
December 10	2	212	...	....	...	....	2	212	1,484
December 17	4	1,579	...	....	...	....	4	1,579	11,053
December 24	4	317	...	....	...	....	4	317	2,219
December 31	4	300	...	....	...	....	4	300	2,100
January 7, 1931	5	501	...	....	...	....	5	501	3,507
January 14	6	2,765	...	....	...	....	6	2,765	19,355
January 21	6	4,650	...	....	...	....	6	4,650	32,550
January 28	8	4,717	...	....	...	....	8	4,717	33,019
February 4	10	7,204	...	....	1	158	11	7,362	51,534
February 11	12	12,104	...	....	1	60	13	12,164	85,148
February 18	17	18,606	1	179	1	5,721	19	24,506	171,542
February 25	18	21,994	4	5,246	1	6,661	23	33,901	237,307
March 4	27	29,116	6	22,343	1	4,578	34	56,037	392,259
March 11	39	45,776	11	29,747	1	7,169	51	82,692	578,844
March 18	48	40,364	17	36,868	5	14,345	70	91,577	641,039
March 25	61	47,862	19	56,482	6	17,769	86	122,113	854,791
April 1	84	51,486	30	68,186	11	24,992	125	144,664	1,012,648
April 8	101	59,687	46	104,544	17	30,754	164	194,985	1,364,895
April 15	129	62,085	69	148,123	25	38,180	223	248,388	1,738,716
April 22	146	70,003	89	169,890	30	58,479	265	298,372	2,088,604
April 29	165	83,847	133	187,217	39	68,713	337	339,777	2,378,439
May 6	172	95,767	171	120,885	46	52,250	389	268,902	1,882,314
May 13	203	92,484	214	116,385	47	48,556	464	257,425	1,801,975
May 20	230	118,036	233	124,265	70	61,511	533	303,812	2,126,684
May 27	251	123,801	273	156,074	86	71,018	610	350,893	2,456,251
June 3	281	119,188	311	165,576	111	66,712	703	351,476	2,460,332
June 10	317	114,290	338	168,015	126	46,729	781	329,034	2,303,238
June 17	350	114,122	379	188,868	142	68,372	871	371,362	2,599,534
June 24	385	114,438	424	163,094	166	82,195	975	359,727	2,518,089
July 1	413	112,351	457	144,655	187	94,951	957	351,957	2,463,699
July 8	433	126,620	495	160,041	221	94,882	1,149	381,543	2,670,801
July 15	473	146,879	522	170,614	236	91,293	1,231	408,786	2,861,502
July 22	493	181,671	558	211,986	256	111,196	1,307	504,853	3,533,971
July 29	527	226,842	579	233,716	289	137,026	1,395	597,584	4,183,088
August 5	560	230,626	603	275,726	305	147,884	1,468	654,236	4,579,652
August 12	601	269,602	645	296,278	332	172,155	1,578	738,035	5,166,245
August 19	622	305,647	668	326,281	354	216,470	1,644	848,398*	5,938,786
August 26	...	....	...	....	...	....	...	....	(a)
September 2	...	....	...	....	...	....	...	....	(a)
September 9	705	60,342	738	69,715	436	41,438	1,879	171,495	1,200,465
September 15 (b)	736	151,274	764	167,848	467	100,303	1,967	419,425	2,516,550
September 22	763	154,114	788	168,902	502	106,246	2,053	429,262	3,004,834
September 29	799	136,465	819	148,463	542	96,468	2,160	381,396	2,669,772
Total production from discovery of field to September 29, 1931									70,643,931

*Although this figure represents daily average for seven-day period, most of the output for the week was produced in first five days, martial law shut-down of field going into effect on morning of August 17, 1931.

(a. Field was shut down under military orders during period August 17 to September 4, inclusive.

(b) Weekly production figures compiled as of Tuesday under military regulation instead of Wednesday as formerly.

Rising Production Lessens Competition for Connections

Tyler, Texas.—Bidding for crude connections in the East Texas oil field by major purchasers has subsided somewhat with the advance of the production to more than 400,000 barrels daily, and some of the concerns that staged a campaign for connections with the advent of martial law enforcement have been lately lightening their load on takings. Majors that have been hit hard by the continued Oklahoma shut-down order are taking the most interest in purchases in the East Texas area, but these buyers are apt to suffer a change of heart on East Texas oil in the event Oklahoma crude is made available, as the latter can be handled for less cost and is more popular with refinery superintendents. Support given the East Texas crude market by Stanolind Crude Oil Purchasing Company, Empire interests, The Texas Company, Shell Petroleum Corporation and Sinclair Refining Company to offset decreased crude runs from Oklahoma fields for their respective middlewestern refineries has enabled the many hundred operators in East Texas to get connections at the market price.

Except for Shell Petroleum Corporation, all of the above named concerns are routing East Texas crude into Oklahoma and northern points, and the transportation cost is greater than if their requirements were filled from Oklahoma fields. Normal rate of purchases in East Texas by these companies is now required to uphold the price structure.

Further gains in field activity has enabled East Texas refineries to boost their quotations on fuel oil and during the past week this high cold test product advanced to 60 cents per barrel at some plants. Operators are paying the price rather than burn high priced crude, which does not go far in firing boilers at drilling rigs, while the gas production of the field is not sufficient to cover fuel requirements.

Northeast Texas Wildcat Establishes Depth Record

Longview, Texas.—Establishing a new depth record for Northeast Texas, J. P. Flanagan, Tulsa, and associates' wildcat test on the J. McGill 160-acre tract, Titus County, was drilling in anhydrite at 6155 feet late last week. This wildcat is being observed with greater interest than any active test in general vicinity of the East Texas oil field, and because of the potentialities of such pioneering effort and valuable data being furnished by its log, a number of major companies have acquired lease protection in the general area. McGill 1 has barely surpassed the former depth record, which was held by Amerada Petroleum Corporation's Wade 1, J. H. Fields Survey, Upshur County. The latter was abandoned in October, 1929, at 6153 feet.

Flanagan et al's McGill 1 is checking structurally high as compared to the East Texas field, located about 35 miles to the southeast, having logged top of Woodbine sand at 3540 feet, with a surface elevation of 369 feet. Drilling was halted at 3887 feet in coarse gravel last July to install a heavier rotary outfit. Top of the lower Cretaceous was logged at 3905 feet, with the base of the Ouachita at 4475 feet. After topping the Paluxy sand at 4912 feet the hole was cased with 8¼-inch pipe at 5090 feet. A minor fishing job developed at 5960 feet, but this was overcome in short order, and first anhydrite formation was logged at 5965 feet.

Loss of drill stem and core barrel took place last week on Sorrells & Duffy's wildcat test in southwestern Upshur County on the J. W. Wooden 160-acre tract as the test reached a critical depth. This wildcat is located in the Isham Williams Survey, about six miles south of Kelsey and about two miles northwest of a recent test on the Robertson farm, J. Stephenson Survey, and logged the Austin chalk at 3573 to 3613 feet, with a surface elevation of 361 feet. The hard lime caprock in Wooden 1 was reported at 3680 feet followed by two feet of white dry sand, and the core barrel was lost while trying to come out with an unidentified hard formation at a total depth of 3689 feet. This places the bottom of the hole at a subsea depth of 3328 feet, or within the danger zone for salt water. Home Oil Company's wildcat test on the F. D. Futtrell 79½-acre tract, A. Lumbrerra Survey, about 2½ miles south of Gilmer, is believed to have been excluded as a possible producer in the East Texas field horizon after having drilled to 3765 feet, with the cores revealing hard broken Austin chalk with streaks of ash. The above figure places the hole at a subsea depth of 3351 feet.

Progress on the Cotton Belt Oil Company's C. S. Jackson-Moore 1, a wildcat test in west central Smith County and south of Swann, has been halted by a fishing job in shale at 4095 feet. This test is located on the Henry Muckelborough Survey. First Broken Pecan chalk was encountered at 3448 feet, and hard chalk was reported at 3518-3714 feet, with a surface elevation of 491 feet. The Wolfe City sand logged at 4000-15 feet proved to be hard and dry.

East Texas Oil Moving By Pipe Line to Dallas and Ft. Worth

Tyler, Texas.—Direct consignment of East Texas crude by pipe lines to refineries at Dallas and Fort Worth on a common carrier basis is now possible over The Texas Pipe Line Company's system. While the Oklahoma military shut-down order remains in force the company is making daily shipments from the East Texas field via Corsicana and Dallas to the Mid-Western system of The Texas-Empire Pipe Line Company to supply refineries of The Texas Company and Empire interests with a portion of their crude requirements. The Texas Pipe Line Company has arranged to handle the entire output of Mid-Kansas Oil & Gas Company in the East Texas field for delivery to the Fort Worth refinery of Marathon Oil Company, an affiliated concern. Deliveries now amount to about 2500 barrels daily, and involve a trunk line tariff of 20 cents per barrel, as compared to a tank car movement cost of about 28 cents per barrel.

Illinois Pipe Line Company, which is also affiliated with the Mid-Kansas Oil & Gas Company, gathers the latter's production, and pumps same to The Texas Pipe Line Company's Longacre station in the Joiner area, otherwise a 10 cent per barrel field gathering charge would apply on the Fort Worth shipments. Other Fort Worth independent refineries are reported to be planning to switch from tank cars to pipe line movement of crude from East Texas. Gulf Refining Company's Fort Worth refinery has been served for months with East Texas crude by Gulf Pipe Line Company.

Simms Oil Company has completed a deal to exchange its production in the East Texas field with Magnolia Petroleum Company for a like amount of Mid-Continent common stocks, which are delivered to the former's refinery at Dallas by Magnolia Pipe Line Company. Simms Oil Company bears the pipe line charge on all crude received, and has suspended operation of its tank car rack system in the East Texas field.

Bell Oil Resumes Payment Of Mid-Continent Oil Price

Wichita Falls, Texas.—Confronted with a loss of crude connections and failing to obtain the support of other independent refiners, Bell Oil & Gas Company resumed paying Mid-Continent gravity scale prices in North Texas 7 a. m. September 29 after having introduced a flat reduction of 20 cents per barrel for all grades one week previous. This company is a buyer of crude in Wichita County, and has a private pipe line system connecting to its refinery across the river at Granfield, Oklahoma. Demand for North Texas crude has tapered off in recent weeks because a number of local refineries have suspended operations, or reverted to a part time basis; but there was sufficient strength in the market to ward off the attempt of the above company to lead off with a general outbreak of price-cutting by other independents.

Rather than to participate in a crude price-cutting movement, American Refining Properties, Inc., owner of the largest refinery in the Wichita Falls area, announced the discontinuance of crude buying in Southern Oklahoma fields, involving about 2000 barrels daily, effective 7 a m. September 25, and on the following day cut off about 800 barrels of outside connections in North Texas. E. H. Eddleman, general manager, notified each connection by letter that the company's plant had been forced to suspend operations September 10 because of the demoralized condition of the gasoline market. He further stated:

"We do not want to be a party to the cutting of the posted price at this time, hoping that if it is not done that conditions might right themselves so we can resume purchase of your crude."

The company has since notified its old connections that if producers are unable to line up a new market outlet that crude storage will be made available at two cents per barrel monthly rental.

Magnolia Plans Deep Test in Parmer County, Texas Panhandle

Amarillo, Texas.—Magnolia Petroleum Company is rigging up rotary to drill a deep test near the center of a block of approximately 70,000 acres held under lease by the company in Parmer County section of the Texas Panhandle. This wildcat location has been made 330 feet out of the northwest corner of the SE Section 73, block "H," Kelly subdivision.

Gas Producers Must File Gross Receipts Tax Reports

Austin, Texas.—Comptroller George H. Sheppard stated Monday that on or before October 25, 1931, the natural gas producers of Texas will be required to file their gross receipts tax reports and pay the tax on natural gas produced during the period August 22 to September 30, inclusive, as provided for in House Bill 547 of the Forty-Second legislature.

The tax is to be calculated at 14-4 plus two pounds above atmospheric pressure on the basis of the average market price by the districts.

Mr. Sheppard stated that eight ounces above atmospheric pressure was first adopted for the purpose of calculating market price, but it appears that the majority of gas companies use the 14-4 plus two basis at this time.

It is expected that the railroad commission will also require conversion to these pressures in its production reports which must be filed with the gas utilities division of the commission each month.

North and West Texas Operators Want Increase in Proration Allowances

(*Continued from page* 49)

remain in force. He stated that only 55,000 barrels of this amount was being run, but that with a better price he expected that some of the marginal wells in the field would be opened which have been closed in for some time. He suggested that North Young County be consolidated with this district. There are about 15,000 producing wells in the field owned by some 700 operators, and almost the entire district is prorated by the marginal well law. Their production for that field is below the market demand, Mr. Hull insisted.

J. M. Gholson requested that the present order allowing 33,000 barrels be continued in West Central Texas, although production is now 28,000 barrels. There are approximately 10,000 wells in this area, 6500 of which are less than 2000 feet deep and produce less than five barrels each. There are 1400 barrels of production without pipe line connection in this area, and in Shackleford County there are many marginal wells permitted to run 10 barrels under the marginal well law which are only allowed to run four barrels by the pipe line companies taking the oil.

A request was filed that producers in the Burkett pool in Coleman County be permitted to run 500 barrels for that pool. They also charged that Arcadia Refining Company has run an excess from the pool, and the other operators requested an order that will permit them to equalize this excess. E. V. Foran testified that it would not be wise to increase the pre-well allowable in the pool above 50 barrels from the 25 producing wells, due to water hazard. He believes, however, that an equalization of production, as requested, should and can be made without damaging the pool.

* * *

The hearing on the Van field was postponed to October 13 at the request of Judge Powell, representing the operators in that field.

East Texas Operators Plan Repressuring With Residue Gas from Gasoline Plants

(*Continued from page* 54)

cent royalty payments to lease and royalty owners will be governed by the gasoline content of the gas as well as the prevailing market price for natural gasoline. The schedule allows a minimum of five and a maximum of 33 1/3 per cent of the market price, but the latter will apply only if the market price is six cents per gallon, or more, and the gasoline recovery is 1.76 gallons or more per 1000 cubic feet of gas.

The schedule to cover payments of casinghead gas is listed below:

Average quoted price per gallon	Gasoline content less than .75 gallon. Per cent	Gasoline content .75 gallon but less than 1.76 gallons. Per cent	Gasoline content 1.76 gallons or above. Per cent
2c or less	5	10	15
More than 2c, but less than 4c	10	15	20
4c but less than 6c	15	20	25
6c or more	20	25	33 1/3

South Texas Field Developments

EARL POST, ***Staff Representative, San Antonio, Texas***

▼ ▼ ▼

Victoria County Test to Plug Hole With Cement

San Antonio, Texas.—Houston Oil Company's Konrad 1, Beck salt dome, northeast of Victoria in Victoria County, which set casing at 4740 feet a few weeks ago and has been forced to re-drill the 200 feet of open hole below many times because of heaving shale, will try to overcome the difficulty by plugging the hole with cement and then drilling through the cement. The total depth is 5044 feet.

The well is showing considerable gas and some oil from a sand at the bottom of the shale and a test of the sand will be made as soon as the shale problem is solved.

Humble Oil & Refining Company had similar trouble with shale directly above the oil and gas sand it encountered in its deep test on the Jay Welder ranch at Nursery, but the sand failed to make a commercial producer. Heaving shale also caused the abandonment of Gibson Oil Corporation's test on the Parks ranch at Fannin in Goliad County when the well gave promise of making an oil producer. Plymouth Oil Company is now rigging up to drill a well on the Parks ranch, 2900 feet southeast of the abandoned well.

United Gas Company is preparing to complete McFadden 5-A, its third well on the Lion block of the McFadden ranch in the southern portion of Victoria County as a gasser. The gas sand is at 3754-59 feet, approximately the same depth as the Lion discovery gasser. In the same territory The Texas Company's No. 3 McFaddin has set 9⅝-inch casing at 4279 feet because of threatened blow-outs of gas struck at higher levels.

Schoolfield and O'Byrne Pool Has Three Completions

San Antonio, Texas.—Three completions accounted for about 3200 barrels flush production in the Schoolfield and O'Byrne southwest extension pool, Duval County. Another well was in process of completion, while still another was to be started immediately.

The largest well of the past week was Thomas and Tarver's Bishop Cattle Company 3 in Section 135, which is recorded as a 1800-barrel well from a sand at 2315-21 feet. Casing was set at 2285 feet and several streaks of sand were encountered below this depth and the main producing horizon. It has been pinched to 800 barrels on a ⅝-inch choke.

The next in line was Duval Oil Corporation's Bishop Cattle Company 5, Section 135, an offset to the Thomas and Tarver well, which is making fully 1000 barrels from a series of broken sands from 2293-2327 feet. It is being pinched to about 500 barrels daily.

Magnolia Petroleum Company has installed a standard rig to pump its Wilson 4, Section 134, which is good for about 400 barrels daily. The exact sand record is not available, although the total depth is said to be less than 2330 feet. Location has been made for Wilson 5 and it will be drilled immediately.

Humble Oil & Refining Company's P. E. White 1, Section 58, offset to the Duval Oil Corporation's Bishop Cattle Company 3, was reported as a completion early in the week, although a gauge was not made. This well was swabbing and showing plenty of oil. It is in the sand at 2313-20 feet.

Three and one-third miles southeast of the field, John F. Camp and Stanolind Oil & Gas Company's Hubbard, Section 73, has been abandoned at 2507 feet, after testing three sands, which were dry, but had odors of both oil and gas.

Preparing to Complete Pettus Test, Bee County

San Antonio, Texas.—Much interest is being manifested in T. B. Slick Estate's George A. Ray 1, at Pettus in Bee County, which after failing to get anything on two drill stem tests, set casing and is preparing to complete. The well topped the sand at 3931 feet and was drilled to total depth of 3939 feet.

The well is 660 feet north and slightly east of Damac Oil Corporation's Ray 1, one mile southwest of Pettus townsite in the John A. Williamson survey, which opened a new pool in the Pettus area earlier in the year when it made 500 barrels initial on a small choke from 3920-25 feet.

The Slick well is in the Kerr survey, just to the north and nearer the townsite. While the Slick test is considerably deeper on the drilling record, a crooked hole accounts for a part of the variance. It is the first well to be drilled into the sand in this immediate section since the discovery of the pool and is being watched with considerable interest.

Lefevre and Buchanan's George A. Ray 1, in the John A. Williamson survey, 2800 feet west of the producer, topped the Jackson at 2950 feet, or 60 feet higher than the discovery well, figuring elevations, which indicates probably production in that direction. The Jackson is considered as the marker in this area, although it sometimes varies, so too much faith cannot be placed in its high strike. The well is now drilling in shale at 3500 feet.

In the discovery field, United Production Company was last drilling at 5707 feet in its Ray 39 in the T. Hanson survey. It is said that this well will be drilled to about 10,000 feet if production is not found at a shallower depth.

Humble's Camp Pool Test Is Interesting

San Antonio, Texas—Humble Oil & Refining Company has made a location in the Camp pool, Darst Creek, Guadalupe County, which will be watched with much interest. The test is 900 feet due south of John F. Camp's Sue E. Denman 1, discovery well, and is about 1600 feet north of Camp's Dan Denman 1, wildcat. The new test is Dan Denman 1, located 450 feet each way out of the northwest corner of the Denman tract in the William Arrington survey.

Camp's Dan Denman 1, is resuming drilling after setting several joints of surface casing.

The company's Sue E. Denman 1-C, east offset to the discovery well, which topped the Edwards at 2510 feet and drilled to 2532 feet, was officially gauged at 876 barrels of oil, 10 per cent sulphur water and three per cent b.s. The

allowable flow is 139 barrels. On the contrary, the test showed no sulphur water or b. s., but took only 12 feet of the Edwards.

The new proration schedule, just released by J. L. Martin, Deputy Supervisor in the Darst Creek district, issued the following proration schedule for October, showing 260 producing wells with a potential production of 121,079 barrels and an allowable of 20,000 barrels.

Company—	No. Wells	Total Potential	Daily Allowable
Abercrombie & Harrison	5	2,920	465
John F. Camp	1	5,768	918
Cranfill & Reynolds	1	85	85
Empire Gas & Fuel Company	8	1,606	336
Gulf Production Company	52	25,443	4,114
Humble Oil & Refining Company	49	22,714	3,609
United North & South Development Company	17	8,355	1,412
Magnolia Petroleum Company	48	10,969	1,865
Penn Oil Company	1	45	45
Stroube & Stroube	1	95	95
Sun Oil Company	15	12,678	2,030
Texas-Humble et al	1	602	96
The Texas Company	53	29,002	4,614
L. C. Turman	2	....	....
Trinity Drillers	3	617	136
H. H. Weinert et al	1	95	95
H. H. Weinert	1	30	30
H. H. Weinert	1	55	55
Field Totals	260	121,079	20,000

Test in Kerr County Has Gas Show at 3035-80 Feet

San Antonio, Texas.—Evans and Gant's Love 2, Section 1592, in the southwest part of Kerr County of the Edwards Plateau region had sand from 3035 to 3080 feet that made a good showing of gas. There was one thin break in the sand at 3060 feet. The gas was not gauged but observers estimated it at all the way from 500,000 to as high as 2,000,000 cubic feet. The well drilled ahead to 3260 feet and set casing, account of a caving hole.

It is about the most encouraging show encountered anywhere in the territory since Love 1 hit the oil sand at 3391 feet nearly a year ago. Love 2 is a half mile southeast of Love 1 and is now the only active test in the district.

Large Gas Well in Refugio County Still Running Wild

San Antonio, Texas.—Humble Oil & Refining Company's O'Conner 1, in the northern part of Refugio County, near the Victoria County line, was still running wild during the late hours, October 5, after blowing in wild at about 8 a.m., October 4. There is little hope for immediate control of the monster gasser, registering possibly 2000 pounds pressure.

The well was drilled into a sand at 2300-09 feet late in August, which tested 800 pounds pressure in three minutes on a ¾-inch choke. The hole was mudded in and the test drilled to 3743 feet, testing numerous times on the way down. At this level it made 14 fourbles of salt water. The well was drilled slightly deeper and an attempt was made to bring out the tools and prepare for another test, baroid and mud being pumped into the hole to hold it down. The process was futile, for the well blew in and is on a rampage, blowing the rotary from the floor.

The main gas flow is believed to be coming from the 2300-09-foot horizon and not from the bottom of the hole. This well is a wildcat, the nearest test being Houston Oil Company's O'Conner 1, three-fourths of a mile to the northwest, which was drilled several years ago and abandoned at about 3000 feet.

This test is 12,625 feet from the south line and 7225 feet from the east line of the John Keathing Survey. It is on an elevation overlooking the San Antonio River, which is the dividing line between Refugio and Victoria County lines. It is more than four miles west and a little south of the McFadden gassers of southern Victoria and about nine miles from the Refugio field.

Drilling in North Mexico Limited to Only Few Wells

Monterrey, Nuevo Leon, Mexico.—The existing unstable market situation in the oil industry along with business in general the world over has apparently had its affect upon development work in Northern Mexico, for there is now less drilling than there was several months ago.

Ohio-Mexico Oil Corporation was recently reported plugging back to 1525 feet in La Presa 1, wildcat on the Mier structure, 16 miles west and a little south of Rio Grande City, Texas, in the north part of the state of Tamaulipas. The well has total depth of over 1700 feet. It attracted considerable interest in May, 1931, when on a drill stem test around 1300 feet it showed 600 pounds gas pressure and was estimated to be capable of completion for 6,000,000 cubic feet gas production daily.

Campania de Petroleo Mercedes is drilling at 965 feet in San Juan 1, located on the Ochoa structure, Tamaulipas. San Juan Drilling Company several weeks ago abandoned its San Juan 1 on the Ochoa structure after casing collapsed, the total depth of the test being 4127 feet. San Juan 1 was located 300 feet northeast of Nacionales 201, the federal government's well which produced some high gravity oil from around 3600 feet, although not in commercial quantity. San Juan 1 was said to have a gas sand at 3546-3580 feet which on drill stem test showed 600 pounds pressure.

In the state of Nuevo Leon on the North Aldamas anticline, 12 kilometers south of the town of General Trevino, Ohio-Mexico Oil Corporation has rigged up rotary and is reported trying to obtain circulation in Hinojosa 1, the depth of the hole being 3425 feet.

A few miles farther south on the South Aldamas anticline, Nuevo Leon, Duncan B. McMillan et al were recently reported drilling at 1675 feet in Santa Monica 5. Their Santa Monica 1 last spring was reported to have yielded some 49 gravity oil along with a considerable amount of gas at 3560 feet.

Rattlesnake Discovery Well Being Cleaned by Continental

Farmington, N. M.—Continental Oil Company is cleaning out its Pennsylvanian sand discovery well in the Rattlesnake pool, San Juan County, New Mexico, which is bottomed at 6790 feet. The well was completed in the spring of 1929 for about 800 barrels of high gravity oil. Water was mixed with the oil and could not be shut off from a horizon above the pay sand because of the depth of the hole and the reduced size.

The company's deep drilling well, a half mile to the southeast of the discovery, is held up for a time, milling on iron in the hole. The first well found around 2200 barrels of production at 752 feet in the Dakota, which was shut off to drill deeper; the same production was found in the well now drilling, and was likewise shut off.

Continental Oil Company now is rigging up for a third well which is to be produced in the Dakota.

Gulf Coast Field Developments

JACK LOGAN, ***Staff Representative, Houston, Texas***

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Manvel Field's Discovery Well Sands Up and Will Be Deepened

Houston.—After registering a consistent drop in production from the 2000-barrel initial established early in September, The Texas Company's Belcher 1, discovvery well of Manvel field in Brazoria County, has sanded up and will be deepened.

Initial pressures on Belcher 1, located 157 feet southeast of the northwest line and 223 feet northeast of the southwest line of Lot 18, Block A, suburban division of the Harry Little Survey, 200 pounds on the tubing and 400 pounds on the casing. These readings dropped to 25 and 100 pounds by September 30. Production had gradually decreased from the above initial figure to 119 barrels by October 1, when the well was shut in to deepen.

The Texas Company has announced the location of Belcher 2 as 1000 feet southeast of Belcher 1, making it 1728 feet southeast and 1231 feet southwest at right angles out of the north corner of the lease.

United Oil Syndicate's Levitt 1, another Brazoria County wildcat well, is shut down for repairs at 1594 feet after having pulled in the crown block. This well is three miles north of Danbury, 900 feet from the west and 400 feet from the south corner of the John Peske Survey.

Thompson Dome Development Program Makes Good Progress

Houston.—Cullen and West and Gulf Production Company's development program at Thompson dome, recently productive wildcat project in Fort Bend County, was being carried forward as rapidly as advisable October 6.

George 2, located 600 feet east of George 1, was drilling in shale and shells at 5040 feet on that date. Lockwood-Sharp 2-A was reaming to set 6⅝-inch casing at 4990 feet. Lockwood Sharp 3-A, located 600 feet east of 2-A, was shut in after coming in blowing dry gas from a sand topped slightly below 3100 feet. The gas is registering a pressure of 1400 pounds on a quarter inch choke. Lockwood-Sharp 4-A is a derrick.

The outcome of the above development projects at Thompson dome are awaited with interest by salt dome operators of the Gulf Coast generally, as the area gives promise of becoming commercially successful.

Coastal Louisiana Completion Good for 3000 Barrels Daily

Houston.—While the old, settled production areas of coastal Louisiana have been among the most conspicuous of those which have been able to fit field development work to market structure needs by launching only a casual amount of new activity, recent completions indicate the territory is far from inactive.

Only last week there was the completion of The Texas Company's Lake Barre 13, semi-wildcat in Terrebonne Parish, for an initial estimated at 100 barrels per hour. This settled after the first day to 1500 barrels per day. This week, Calcasieu Oil Company, operating in old East Hackberry field of Cameron Parish, completed Watkins 6 at 3008 feet for 3000 barrels initial production.

States Production Company, developing Chacahoula dome in La Fourche Parish, abandoned its Dibert-Starck-Brown A-1 as a junked hole at 1147 feet. This well is located 500 feet south and 325 feet west of the northeast corner of Section 71-15s-15e. In the Lake Pelton district of Terrebonne Parish, The Texas Company ran into salt water on Lake Pelto 6 and abandoned same at 2655 feet.

Gulf Coastal Fields Effect Substantial Production Cuts

Houston.—While the major portion of curtailment and proration effort for the past year has been directed at East Texas, Oklahoma and California, the Gulf Coast region of Texas and Louisiana has been able, in a quiet, orderly manner, to effect a substantial reduction in daily production.

Convenient figures for June, July, August and September of 1930 and 1931 reveal that by comparing these four months alone, the Gulf Coast has shown roughly a 25 per cent reduction in output. The total oil produced in this area during those four months of 1930 was 25,233,500 barrels. The total figure for the corresponding four months of 1931 was 19,250,500 barrels, representing a decrease of 5,983,000 barrels. This means the daily average recovery of oil in the Gulf Coast for these four months has been 49,040 barrels less in 1931 than it was in 1930.

Whether or not these figures have a bearing on the regional market condition, it is significant that the tone of the regional Gulf Coast market has been stronger, or perhaps less weak, than regional tones in other sections where proration efforts have been attended by interest attracting situations and actions.

Gulf Coast Area Has 92 Operations Under Way

Houston.—A recent survey of drilling activities in Texas and Louisiana Gulf Coasts, in proven and wildcat areas, reveals that there are 92 wells drilling or temporarily shut down, 18 rigs on operations that have not spudded, and 28 locations on which derricks have not been built.

In the proven fields of Coastal Louisiana, there are 15 wells drilling or temporarily shut down, four rigs and 15 locations. In the list of South Louisiana wildcats, there are 13 drilling or temporarily shut down, three rigs and five locations.

In proven fields of Coastal Texas, there are 28 wells drilling or temporarily shut down, four rigs and two announced locations. Among the Texas Gulf Coast wildcats, there are 36 wells drilling or temporarily shut down, seven rigs, and six announced locations.

Houston.—Coastwise shipments of Sun Oil Company from Sun and Sabine Pass, near Beaumont, totaled 1,361,797 barrels during September, an increase of 178,776 barrels over the amount oil shipped by that company in August.

Louisiana--Arkansas Field Notes

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Abandonment Defines Western Edge of Richland Gas Field

Shreveport.—Apparently defining the western edge of production in the northwest part of the Richland Parish gas field, Southern Carbon Company last week abandoned J. A. Noe 1, located 3291 feet south and 660 feet east northwest corner, Section 24-17-5e, Richland Parish, as a dry hole at total depth of 2530 feet, approximately 100 feet below the shale gas producing horizon of this field. After bailing dry at 2440 feet, this test showed about 7,000,000 cubic feet of gas at 2452 feet and then went dead. It was deepened to 2462 feet, where it showed 300 feet of salt water in 17 minutes. Later it showed 20 fourbles of salt water from 2473 to 2500 feet and tested dry from 2510 to 2530 feet. Six-inch casing was cemented at 2285 feet.

Three-fourths of a mile southeast of this test, the same company's Cummings 1, located 3485 feet west and 1320 feet north southeast corner Section 24-17-5e, gauged 3,362,000 cubic feet of gas with 1032 pounds rock pressure at total depth of 2440 feet in shale.

Two large gassers in the proven Richland Parish field were completed last week. United Gas Public Service Company's Louisiana State B-1, Section 32-17-6e, gauged 42,200,000 cubic feet of gas with 750 pounds pressure at total depth of 2405 feet and the same company's C. H. Pies 1, Section 35-17-6e, gauged 41,184,000 cubic feet, with 580 pounds pressure at total depth of 2410 feet.

One new location was announced in North Louisiana during the last week, this being Stovall Drilling Company's Miller 1, NE SW Section 18-10-10e, Tensas Parish, Northeast Central Louisiana.

Plans Wildcat Test for Prairie County, Arkansas

Shreveport.—Location for a wildcat test in Prairie County, Arkansas, was announced during the last week by Powell Creek Oil and Gas Company for Kloss 1, NE SW Section 3-4n-6w. Fitzwater and associates have resumed activity in E. L. Beck 1, SW SE Section 33-15-26, Miller County, Southwest Arkansas, a test abandoned several months ago at a depth of 85 feet, where 10-inch casing had been set; this is also a wildcat.

Late last week Lion Oil Refining Company and associates were drilling hard lime at 5750 feet in Guy P. Hayes A-9, NE NE Section 4-16-15, Union County, Arkansas, the first 6000-foot test for the Smackover field; elevation is 96 feet.

Test Five Miles North of Zwolle Field Has Oil Show When Bailed

Shreveport.—J. J. Kean's Belton 1, NW SE NE 31-9-13, Sabine Parish, five miles northwest of the Zwolle field, was bailing late last week at 1700 feet, showing some oil but no gas. This test is in the Zwolle chalk rock at this level, this formation being high, the Nacatosh under which the chalk, overtopped by a thin layer of marl, being topped at 1596 feet. Eight-inch casing was cemented several months ago at 1590 feet, but the well, after standing for some time before being tested, bailed dry at 1605 feet. A break in the chalk at 1646 feet showed some oil but the test was continued to 1700 feet. Whether this well makes a commercial well or not proves the existence of a separate structure between Zwolle and the Pleasant Hill field. The Belton 1 checked approximately 100 feet high, as compared to Pleasant Hill, using the Nacatosh contact as a basis of comparison.

Pelican Natural gas Company's Louisiana Long Leaf 10, NW NE Section 10-7-11, in the Zwolle southeast field, was completed flowing 42 barrels of oil daily through two-inch tubing from the chalk at total depth of 2387 feet. No new locations were made in Zwolle last week.

The Texas Company's DeLatin 1, SW SE SE Section 3-7-11, in southeast Zwolle, was abandoned as a dry hole at 2625 feet in hard lime. Five separate tests made at different levels of the Zwolle chalk failed to show signs of production.

Hinds County, Mississippi, Gets 35,000,000 Foot Gasser

Jackson, Miss.—Belhaven Oil & Gas Company (J. E. Grandstaff and associates) completed Buford 1, SW NW SE Section 11-5-1e, Hinds County, as a 35,000,000 cubic foot gasser, production estimated, at 2454 feet in the Midway chalk during the last week. Six-inch casing was cemented at 2413 feet. There were no new locations announced in Mississippi during the week.

Gulf Refining Company, after a long fishing, milling out and sidetracking job, has junked hole in Hanna A-1, NW SE Section 23-5-1e, Rankin County, a mile south of gas production in the southeast part of the Jackson field, and is skidding derrick over for a new hole. This test is one of a series of 4000-foot tests to be drilled in the vicinity of Jackson under an agreement between Gulf Refining Company and another company in connection with a transfer of gas rights on acreage several months ago. The junked hole's total depth was 2815 feet in the Midway chalk which was topped at 2562 feet after black shale was topped at 2471 feet. The drill pipe hung at 1470 feet in the hole causing the trouble.

United Gas Public Service Company's Tchula Store 1, Section 33-15n-3e, Warren County, Mississippi, a 4000-foot wildcat test, topped Claiborne at 725 feet last week; 10-inch casing has been cemented at 855 feet in gummy shale.

Pensacola, Fla.—Ray L. Estabrook and associates' Walton Land and Lumber Company 1, Section 12-1n-19w, Walton County, Florida, was drilling last week in sticky black shale at 3320 feet. Operators say they are in the upper Cretaceous.

Jackson, Miss.—S. A. Hobson, who has been drilling intermittently for three or four years with cable tools on Wilson 1, Section 27-7n-1w, Washington County, West Alabama, on the Hatchetigbee Anticline, and is now down to 925 feet still in Wilcox, is said to have closed a trade with P. J. McAlpine, drilling contractor of Amory, Mississippi, to continue the test with rotary rig, now en route to the well.

Shreveport.—Total gas from wells in Louisiana including both gulf coastal and North Louisiana districts for the first half of 1931 aggregated 116,468,091,000 cubic feet. Production is on a 10-ounce pressure basis, with atmosphere of 14.4. For the first half of 1930 the total gas pulled in the state was 139,576,248,000 cubic feet. The figures were announced by the minerals division of the Louisiana Conservation Commission.

INTERNATIONAL PETROLEUM
IN REVIEW

ROY E. LEIGH, *Foreign Editor, New York*

Germany Reports Wildcat Discoveries

New York.—Interesting wildcat news comes this week from one of the few oil producing countries of the world where discoveries of this nature still retain economic value. It is an oft-told saga, lately sung of "Dad" Joiner of Texas and now of Anton Raky, of Germany. Previous reports described this old wheel-horse of the European oil industry as a bankrupt; but kindred spirits all over the world will rejoice in current reports which tell of a recent discovery by means of which this intrepid old-time well-digger has extended the Nienhagen field and pulled himself out of bankruptcy.

Details of Raky's financial and legal affairs are lacking, but the story of his 2000-barrel completion extending the Nienhagen field by one kilometer northward will bring thrills to wildcatters everywhere.

An Oil Field In a Mine

Other interesting news comes from Weimar, in Thuringia, where Burbach Mining Company is developing an important oil field at the bottom of a 3000-foot potash mine. This is a field which virtually discovered itself, thereby proving that the oil industry still has a few "kicks" left for its devotees.

The presence of oil in commercial quantities became known about one year ago when three men lost their lives upon opening up an abandoned mine gallery in which oil had accumulated under pressure from a seepage connecting the potash workings with oil sands lying below. German oil-mining methods have been employed in the development of the field, now one of the most important oil sources in the country. The proven area is about three square miles in extent, and is credited with an output of around 2500 barrels of 40 gravity oil per day.

A Vertical Pipe Line

Advantage is taken of the 3000-foot shaft of the old potash mine, from the galleries of which shallow core-holes of about one inch in diameter are drilled into the underlying oil sands. Some 25 or 30 such holes have been drilled to date by means of core-drilling equipment ordinarily employed by potash miners. Oil flows under its own pressure from the bottom of the mine to the surface, through a vertical pipe line of large diameter, to which the flow lines of the small-diameter producing wells are connected underground. Natural rock pressure of around 1200 pounds is said to obviate the necessity of pumping the production from the bottom of the mine to the surface, as at Pechelbronn[1].

Officials of the mining company are now planning to drill additional underground wells of four-inch diameter, from the mine galleries to the oil sand below.

The importance of this development, apart from its impetus to German production, is said to lie in the belief of geologists that the source of this oil occurs in the Permian rocks or below, in strata older and deeper than the sands which produce oil in the Province of Hannover. These new source rocks occur within reach of the drill over extensive areas in central and southern Germany, thus broadening the search which heretofore has been confined chiefly to the salt dome country of the North German Plain. It is as if the search for oil in our Southwest had for the first time been extended from the Gulf Coastal region into North Texas, North Louisiana, Arkansas and Oklahoma.

North European Oil Corporation, an American-European

[1]See description of German and French oil-mining methods published in The Oil Weekly of August 1, 1930; page 118.

enterprise of which Sidney H. Keoughan, formerly president of Continental Oil Company, is now at the head, has recently acquired a controlling interest in a concession of 4,500,000 acres in the state of Wurttemberg, the western boundary of which is only about 40 miles east, across the Rhine River, from the Pechelbronn field, in Alsace. Geological investigations are now in progress, and company officials have stated that development work may be commenced in the spring. The city of Stuttgart is located a short distance northwest of the approximate center of this concession, which extends roughly from Heidelberg to Friederichshafen, on Lake Constance.

North European Oil Corporation is running two drilling rigs in Germany at the present time, having previously completed four dry holes. One of the current drilling operations is located on the Zwischenahn dome, about 15 miles from Oldenburg. According to latest reports, it has reached a depth of approximately 2800 feet. A showing of gas was logged at around 1200 feet, and showings of oil and gas were reported at depths of approximately 1400 and 1450 feet. Drilling is actually in the hands of engineers of the Preussag organization, on footage contract basis. Modern rotary equipment is being used, with talent supplied in part by the American company. A test of the Nienhagen sands is expected at 4500 feet, or thereabouts; but it is planned to continue to a depth of 5000 to 6000 feet, if necessary.

North European Oil Corporation is also drilling another well in Braunschweig, located about three miles from the city of that name. Company rotary equipment is employed on this well, which has reached a depth of 2300 feet. This is the company's second operation in the Braunschweig district, the first hole having been abandoned at a depth of 1000 feet on geological evidence indicating that its location is off structure.

Plans are also under consideration for the drilling of a second well near Hamburg, about 17 miles from the famous old gas well at Neuengamme. The first well drilled by the company in this district encountered showings of gas at 2300 feet.

Ost Oel Gesellschaft, Royal Dutch-Shell subsidiary organized a few months ago to take over 800,000 acres of North European Oil Corporation's holdings in Oldenburg and Hannover, is drilling in its second well south of Oldenburg, its first having met with failure.

Cities Service or Doherty interests are drilling at around 1500 feet in a second well near the city of Hannover, an earlier test having been abandoned at around 1000 feet.

Russian Production Approaches 500,000-Barrel Mark

Moscow, U. S. S. R. — Soviet oil output averaged 466,885 barrels per day during the month of August as reported by the Economic Review of the Soviet Union. This represents an increase of 21½ per cent above similar averages last year; but this total, nevertheless, fell short of the official quota by about 18 per cent. Total output for the first eight months of the year approximated 111,600,000 barrels, 26 per cent above the output for the same period of last year.

If this rate of increase is maintained, Russian oil production may exceed 500,000 barrels daily by the end of the year.

Drilling operations totaled 1,243,000 feet during the eight months period. Thus it appears that the socialized industry is drilling more than 5000 feet of hole per day and completing about two wells per day, on the average.

Russian Estimate of Soviet Oil Resources

New York.—Prof. D. Golubnikoff, writing in the Soviet oil trade journal Azerbaidjan Oil Industry, of Baku, sounds a note of warning regarding the depletion of the prolific oil fields of the Apsheron Peninsula, which he thinks is a matter not of decades but of a few years time. Apparently with military considerations in mind, he urgently recommends that new fields be sought "in the interior of the country and not at the boundaries, otherwise other sources of energy will have to be found for our industries."

Citing successful exploratory work carried out by the Geological Research Bureau of Azneft Oil Trust, which resulted in the discovery of important production at Kara Tchukhur, a southern extension of the Surahany structure, he says that Kara Tchukhur at best can only prove to be another Surahany; and that discoveries are of small importance as compared to Bibi Eibat, Baluchany, Sabunschi, Surahany, and Romani, fields whose economic importance has been felt throughout the world. Forecasting the decline of these intensely developed regions, he asks:

"Whence is the production deficit to be found? Turning our attention to the other oil trusts we see that, as regards the exploration of new regions, matters are—even much worse. We are too late with the exploration of new regions."

Discoveries made by Grozneft at Vosnesenskaia, Bekovitchi, and Benoi, on the north flank of the Caucasus Mountains, are of secondary importance, in his opinion; and no other new fields have been found which could replace the Old and New fields at Grozny. The Maikop dsitrict, near Tuapse, has yielded gusher production, as he relates; but these deposits are of a limited extent and may rapidly be exhausted.

The Emba district abounds in seepages, he says; but no new fields have been found which could replace Dossor and Makat, fields of secondary importance, which are nearly exhausted. Exploration in this district "is being carried out at a snail's pace."

Recent discoveries at Tschusovaya in the District of Perm, northeast of Moscow, are of great importance; but the deposits there are so peculiar and of such small extent that much work and money will have to be expended before the commercial importance of this district can be ascertained.

The Fergana field, in Central Asia, is of small importance; and ranks, in his opinion, below the Sviatoy field, located on an island off the coast of Baku, whose output is less than 5000 barrels per day.

Over 13 oil-producing horizons are found on the Island of Saghalin, off the Pacific Coast of Asia, where rich deposits of world-wide importance are known to exist; but "the remoteness of this region and the fact that it is isolated from the continent are factors that considerably reduce the value of the oil fields and handicap the development of the oil industry."

It is pointed out that prospecting operations of the immediate future are to be concentrated in the Baku region.

Propose Compulsory Purchase of Shale Oil

London.—One of the proposals made for the rehabiliation of the Scotch shale oil industry takes the form of a subsidy, under a legislative arrangement whereby importers of foreign oils would be required to purchase a certain percentage of shale oil products, particularly benzol, for mixture with products sold on the British market.

Completions for Past Week in U. S. Fields

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CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
KERN FRONT—		
Chanslor-Canfield Midway Oil Co., No. 38, 23-28-27	200	2190
LONG BEACH—		
R. R. Bush Oil Co., Bell 3	150	8070
E. E. Combs, Hope 1	240	7185

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
CADDO PARISH (Pine Island)—		
J. T. McCormick, C. B. Christian 1, 27-21-15	*	1200
RICHLAND PARISH—		
Southern Carbon Co., J. A. Noe 1, 24-17-5e	*	2510
United Gas Pub. Serv. Co., Cummings 1, 24-17-5e	¶3¼	2440
Louisiana State B-1, 32-17-6e	¶42¼	2405
C. H. Pipes 1, 35-17-6e	¶41¼	2410

SOUTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
EAST HACKBERRY—		
Calcasieu Oil Co., Watkins 6	3000	3008
LAKE BARRE—		
The Texas Co., Lake Barre 13	1500	3700
LA FOURCHE PARISH—		
States Prod. Co., Lutcher-Stark-Brown A-1	*	1167
TERREBONNE PARISH—		
The Texas Co., Lake Pelto 6	*	2655

MISSISSIPPI

Company, Well and Location	Initial Production Bbls.	Depth
HINDS COUNTY (Jackson Dist.)—		
Grandstaff et al, Buford 1, 11-5-1e	¶35	2454

SOUTH TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
DUVAL COUNTY—		
John F. Camp & Stanolind O&G Co.'s Hubbard 2	*	2509
Duval Oil Corp.'s Bishop Cattle Co. 5	1000	2324
Magnolia Pet. Co.'s Wilson 3	400	2332
Thomas & Tarver's Bishop Cattle Co. 4	1800	2321
MEDINA COUNTY—		
Genard Bros.' Crawford 1	*	2145
NUECES COUNTY—		
Saxet & Co.'s McCampbell	¶20	2429
WEBB COUNTY—		
O. W. Killam's Bruni 20	¶10	2723
WILLIAMSON COUNTY—		
Citizens Oil Dev. Co.'s Forewood 2	*	1586
ZAPATA COUNTY—		
Trevino Oil Corp.'s Trevino 11-A	25	1215

CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
JOINER FIELD—		
British-American Oil Prod. Co., Stone 3	6500	3660
Devonian Oil Co.-Barnsdall Oil Co., W. O. Alford (99-ac) 2	7000	3788
Dyck Oil Co. (R. R. Osborne) C. O. Crim 1	6500	3822
The Falcon Co., T. O. Mason 2	5500	3640
T. O. Mason 3	8400	3635
Golding-Murchison Oil Co., E. E. Thrash (31-ac) 2	5000	3664
Gulf Prod. Co., Cashen (35-ac) 3	8000	3782
Cashen (35-ac) 4	8000	3769
Seib Stone 2	5000	3774
Jack Wiley (128-ac) 3	10,000	3773
Humble O&R Co., A. D. Blackwell (64-ac) 8	7000	3698
C. A. Brightwell 1	12,000	3775
Lulu DeGuerin 1	11,000	3778
J. R. Elliott 1	11,500	3803
Kangerga (116-ac) 15-A	8500	3655
M. Kangerga (125-ac) 2-B	10,000	3659
W. A. Mullikin 3	15,000	3790

For Tabulation and Comparison See Market Section

Company, Well and Location	Initial Production Bbls.	Depth
C. Pitgreen 1	12,000	3799
J. E. Sexton 1-B	9000	3771
M. C. Thompson 2	15,000	3613
J. E. Wheelis (184-ac) 6	10,000	3717
H. L. Hunt et al, R. W. Fair (153.8-ac) 1-C	5500	3648
R. W. Fair (153.8-ac) 2-C	10,000	3647
Joe Lee (61ac) 2	6000	3716
W. P. Moore (80-ac) 2	5000	3644
I. R. Thrash (57-ac) 4	6500	3730
Neal Turner 1	7000	3736
Kirby Pet. Co., R. P. Grambling 1	9000	3736
Magnolia Pet. Co., G. W. Eaton (40-ac) 5	9000	3796
Dan Kelly 2	4500	3621
Jerome McLester et al, S. S. Cook (7-ac) 1	12,000	3754
Roeser-Pendleton, Inc., M. & Ras Pool 3	3500	3750
Sinclair O&G Co., W. D. Kinney (579-ac) 8	8000	3648
W. D. Kinney (579-ac) 9	8000	3618
W. D. Kinney (579-ac) 10	8500	3646
G. Patterson (153-ac) 2	4000	3699
Stanolind O&G Co., O. H. Grissom (30½-ac) 2	7400	3711
Stroube-Collins & Wheelock, Pinkston 1	4500	3686
Sun Oil Co., E. O. Henson (54-ac) 2	5000	3684
Ward Oil Corp. et al, E. S. Thrash (70-ac) 4	5000	3818
KILGORE FIELD—		
Atlantic Oil Prod. Co.-Byrd & Frost, Inc., W. Smith (39-ac) 3	7400	3596
Delaney & J. B. Stoddard, D. Smith (25-ac) 2	11,000	3605
Gann & Wills et al, G. Johnson 1	8000	3586
Gulf Prod. Co., C. E. Christian (100-ac) 2	8700	3722
G. W. Culver 2	15,000	3541
G. W. Culver 3	6800	3588
A. Spear (82-ac) 8	7000	3583
J. B. Watson (78-ac) 5	10,000	3564
Houston Oil Co., M. T. Cole 1	6000	3545
Humble O&R Co., L. D. Crim (120-ac) 24	7000	3596
David Ladd 3-A	4000	3686
S. S. Laird 10-B	7800	3638
H. Sexton 1-C	9000	3751
Dora Thomas (172-ac) 5	8600	3605
Dora Thomas (172-ac) 6	9500	3615
Kathleen Oil Co. (Glasscock Bros.), P. Jones 1	11,000	3712
Magnolia Pet. Co., Della Crim (50-ac) 8	10,000	3657
W. P. Moore (153.64-ac) 9	11,000	3649
Ortiz Oil Co. (Hall & Winn) & C. M. Cope, Inc., Kilgore School 1	8000	3616
Petroleum Finance Corp., Laird & Crim 1	8000	3545
Pilot Oil Co. (F. D. Prince), J. Johnson 1	5000	3595
Sinclair O&G Co., A. A. King 6-B Tract No. 1	7700	3490
States Oil Corp., Gipson (25-ac) 1	5000	3792
Sun Oil Co., M. C. Saterwhite (82-ac) 3	10,500	3598
C. H. Hilburn-Chas. Lloyd (133.7-ac) 7	6000	3687
The Texas Co., J. M. Dixon (88.4-ac) 2	7000	3615
Tidal Oil Co., M. G. Barton (193-ac) 3	15,000	3555
Vise et al, C. Wells 2	10,000	3666
Wheelock & Collins, D. Wills 2	10,000	3723
LONGVIEW FIELD—		
Alma Petroleum Corp., C. D. Gay 1	15,000	3684
J. W. L. Young (86-ac) 2	12,000	3689
Amerada Pet. Corp., Mary Killingsworth 1	15,000	3626
Barnsdall Oil Co.-Houston Oil Co., McGrede 5	10,000	3607
Barnsdall-Sun Oil Co., Bingham 1	12,000	3523
Citizens Oil Co. (Gladewater), School Lot 1	12,000	3620
Cox & Jake Hamon, Fee 1	9000	3638
Duffey & Davis, J. A. Godfrey 1	8600	3580
East Texas Ref. Co., P. C. Castleberry 1	8000	3613
East Texas Ref. Co. et al, V. P. Sparks (50-ac) 1	7500	3699
F-H-E Oil Co., E. M. Clements 1	12,000	3594
Gibson Oil Co., W. F. Smith 1	9500	3689
A. Goldsmith et al, Wm. Kobb 1	9000	3580
Gulf Prod. Co., Bozeman 4	10,000	3638
J. Judge 1	11,000	3518
M. O. Sheppard (300-ac) 2	12,000	3521
Gulf & E. L. Smith Oil Co., Tom Clemmons (55-ac) 3	9600	3699
P. L. Hoffman et al, W. N. Kellum-Meyers (20-ac) 1	9000	3550
Humble O&R Co., D. Johnson 1-B	15,000	3634
J. M. McFarland 1	11,000	3667
A. D. King et al, R. P. Doby (5-ac) 1	12,000	3730
Lester & Duffield, J. C. McKinley 1	8000	3577
H. L. Lockhart et al, Tenery 1	9000	3674
Magnolia Pet. Co., Jim Allen (38-ac) 2	10,000	3654
R. A. Adkins (100-ac) 2	6000	3714
L. J. Everett (171.8-ac) 5	8000	3661
Dolly & Hobart Keys (40-ac) 1	7500	3546
Mook-Texas Oil Co., Della Rodden (23-ac) 2	8400	3686
National Oil Co. et al, A. D. Johnson 1	12,000	3602
O. J. Perrin et al, E. E. Anderson (14½-ac) 1	12,000	3660
Petroleum P. L. & Storage Co. et al, J. B. Tenery 1	11,000	3661
Roeser-Pendleton, Inc., Satterwhite (50-ac) 2-B	8500	3712
Root & Rhodes, E. W. Clements 1	15,000	3600
Selby O&G Co. et al, H. R. Snavely (118-ac) 2	6500	3598
Shell Pet. Corp., R. L. Bassham 1	9000	3654
C. C. Landers (107-ac) 2	6500	3680
C. C. Landers (107-ac) 3	6000	3667
Sinclair O&G Co., J. W. Akin 3	8400	3587
M. Moncrief (252-ac) 7	7000	3589
M. Moncrief (252-ac) 8	7500	3573
Stanolind O&G Co.-Simms Oil Co., R. A. Atkins (18-ac) 2	5000	3679
Sun Oil Co., M. C. Satterwhite (82.7-ac) 3	15,000	3598
The Texas Co., J. M. Tuttle 1	15,000	3581
Texota Corp., M. Fenn (28-ac) 2	13,000	3628
Tidal Oil Co., E. M. Nettleton 1, Lse. 1	12,000	3481
Trico Oil Co., J. W. Free 1	9000	3660
Yount-Lee Oil Co., Adrian-McCrary 1	10,500	3497
McGrede 1	10,000	3592
L. E. Orms 1	9000	3542

CENTRAL WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
CALLAHAN COUNTY—		
Beams et al, I. N. Jackson 2-C	*	1222
Producers & Purchasers Oil Co., Alexander 5	60	1037
COLEMAN COUNTY—		
Jamison-Pollard & Forester, H. W. Kingsberry 3	100	1369
EASTLAND COUNTY—		
Mays et al, W. A. Dalberry 1	*	1240
Wilkins et al, T. C. Harrell 1	¶½	1021

Company, Well and Location	Initial Production Bbls.	Depth
PALO PINTO COUNTY—		
J. B. Gordon et al, Watson Bros. 1	¶13	2998
SHACKELFORD COUNTY—		
Scott & Walker, L. C. Huskey 3	¶¼	506

WEST TEXAS

FISHER COUNTY—		
The Texas Co., Burham-Daniel 1	†	2222

OKLAHOMA

CREEK COUNTY—		
Westfall Drlg. Co., McGee 1, se c sw sw 25-19-8e	50	2220
National Investors Co., Posey 1, nw c sw se 17-16-8e	400	3300
S. J. Mathews et al, Vierson 1, csl se se 16-16-11e	¶1¼	586
Burton and Holmes, Barnett 2, cnl se nw 7-19-10e	*	2209
LeFLORE COUNTY—		
Sconer O&G, Robbs 1, sw c 26-7-26e	¶¼	1445
MARSHALL COUNTY—		
D. H. Curry, Ward 1, nw c sw se 15-5e-6e	*	2311
MUSKOGEE COUNTY—		
R. A. Godfrey et al, Benge 1, ne se ne 8-15-18e	¶10	1572
OKLAHOMA COUNTY—		
Slick Oil Co., Central 4, sw c ne se se 3-11-3w 8 hrs	257	6245
Slick Oil Co., Classen-Edwards 6, sw c sw se sw 3-11-3w 3 hrs	4500	6351
OSAGE COUNTY—		
Oklahoma Power & Light Co., 133, nw c ne 26-21-9e	*	2348
STEPHENS COUNTY—		
American Pipe Line Co., Dexter 7, ne c se se nw 34-1s-8w	35	1974

KANSAS

COWLEY COUNTY—		
Lehman et al, Graham 1, ne c sw 1-33-4e	5	1437
McPHERSON COUNTY—		
Harris and Haun, Overman 2, ne c se 20-19-1w	¶37½	2924

EASTERN STATES

PENNSYLVANIA-NEW YORK

TIOGA-WAYNE COUNTIES—		
Lycoming Natural Gas Co., Decker 1	*	4781
Place 1	¶4	4281
Ashton 1	¶10	3977
West 1	*	4760
Tremain 1	*	4115
Elkland Oil & Gas Co., Frisby 1	*	....
Van Dusen 1	*	....
Vaughn & Rose, Cummings 1	*	4140
Mosherville Oil & Gas Co., Braidstead 1	*	4750
East Penn Development Co., Smith 1	*	4692
Wade & Moore, Carey 1	*	4317
Weir & Thorn, Roe 1	*	4249
Penn United Gas Co., S. Smith 1	*	4420
Tremain 1	*	3980
Wheeler 1	*	4321
Burdette 1	¶43¼	4144
Meaker 1	¶66	4204
Traynor Bros., Bostwick 1	*	4203
Pennsylvania Power & Light Co., Burdette 1	¶2½	3647
Williamsport Oil & Gas Co., Bache 1	*	4254
Manufacturers Gas Co., Buckabee 1	*	4254
Penn Ohio Gas Co., Close 1	¶13	4036
Sylvania Corporation, Elliott 1	*	4134
Hope Engineering Co., Brituh 1	*	4921

WEST VIRGINIA

CALHOUN COUNTY—		
Crummies Creek Fuel Corp., Brannon 2	¶¼	2353
O'Brannon 2	¶1	2343
Chemical Oil Co., Fling-Rider 1	¶¼	2083

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn — abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; d.—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd — shut down; sdtr — sidetracking; sp — spudding; sr — straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

Company, Well and Location	Initial Production Bbls.	Depth
MARSHALL COUNTY—		
Manufacturers Light & Heat Co., Burley 1975	¶½	3014
BOONE COUNTY—		
Owens-Illinois Glass Co., Powell Hrs. 6	¶¼	....
GILMER COUNTY—		
Mud Lick Oil & Gas Co., Lynch 2	*	1920
PLEASANTS COUNTY—		
H. M. Adams, C. Ruckman 1	1	....
J. Ruckman 1	1	....

SOUTHEASTERN OHIO

MONROE COUNTY—		
J. E. Lumbardis & Co., Fogle 1	¶¼	1794

MICHIGAN

MIDLAND COUNTY—		
The Pure Oil Co., Purtel 1	2500	3700
Iosco Land A. 1	1500	3660
WAYNE COUNTY—		
G. E. LeVeque, Frakes 2	*	120
Frankes 3	¶¼	110

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
ASHTABULA COUNTY—		
Ross Riggs & Co., Frayer 1	*	....
ASHLAND COUNTY—		
Ohio Fuel Gas Co., Martin 1	*	....
ATHENS COUNTY—		
Standard Natural Gas Co., Young 1	¶½	1045
John Walters & Co., Stratton 1	30	3400
BELMONT COUNTY—		
Central Gas Co., Mann 1	*	....
LICKING COUNTY—		
Emerald Petroleum Co., Fidler 1	*	2118
VINTON COUNTY—		
Donahue & Co., Gibbons 1	*	835
MEDINA COUNTY—		
Barnhart & Co., Holshoe 1	*	2716
Edson & Co., Packard 19	50	365
STARK COUNTY—		
Brendall & Co., Cockley 1	¶4½	4403
Wittmer Oil & Gas Co., Shuman 1	6	3931
Ohio Fuel Gas Co., Young 1	¶3¼	....

NORTHWESTERN OHIO

WOOD COUNTY—		
Lake Shore & Southwestern Metal Co., Keckley 1	¶½	1600

INDIANA

PIKE COUNTY—		
C. E. Wommer, Morgan 1	¶¼	1150
Craig 1	*	1100

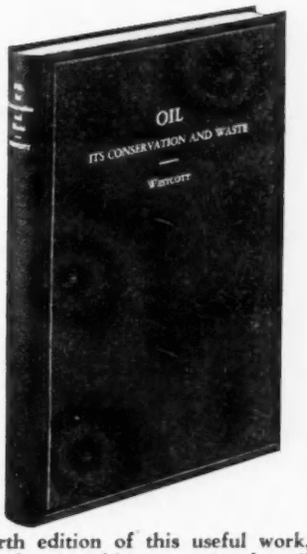
KENTUCKY

DAVIESS COUNTY—		
Ellis & Ashby, M. Howard 3	15	737
Hupp & Duff, Jones 2	20	746
Brenner & Adams, Hazerig 1	*	700
S. H. Russell & Co., Neel 1	10	....
OHIO COUNTY—		
Kentucky Natural Gas Co., Griffith 8	¶¼	....

Oil, Its Conservation and Waste

By JAMES H. WESTCOTT

FOURTH EDITION, OCT., 1930



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OKLAHOMA

OKLAHOMA COUNTY — I.T.I.O., South Glendale 1, c w½ nw nw nw 26-11-3w; I.T.I.O., Little 1, ne c 27-11-3w; Phillips Petroleum Co., Brittain 1, nw ne se 35-12-3w.

OKMULGEE COUNTY—Kirkland & Son, Brown 7, csl nw sw 9-15-13e.

PITTSBURG COUNTY—Utilities Producing Co., Kohler 4, sw se sw 11-7-18e.

STEPHENS COUNTY—Murray Petroleum Co., Wilkerson 1, se c ne se 8-1s-5w.

KANSAS

GREENWOOD COUNTY—Polhamus et al, Johnson 3, ne c 21-24-12e.

KINGMAN COUNTY—Panhandle Drlg. Co., Wetherall 1, se nw sw 20-28-10w.

MARION COUNTY — Bedner et al, Bernhardt 1, sw c ne 16-17-4e.

McPHERSON COUNTY — General Petroleum Co. et al, Middleswart 1, ne c 9-19-2w; Carey and The Texas Co., Holt 1, (owd) c nw se 13-19-2w; Syndicate Oil Co. and Shell, Becker 4, nw se se 36-19-2w.

RICE COUNTY—Allison and Fitzwilliams, Walstein 1, nw c 2-21-6w.

CALIFORNIA

ELWOOD—Barnsdall Oil Co., Luton-Bell 20, 15-4-29.

INGLEWOOD—Standard Oil Co., L. A. I. 1-67, 17-2-14.

KERN RIVER—C. C. M. O. Co., No. 39, 23-28-27.

KETTLEMAN HILLS — Kettleman North Dome Association, No. 76, 34-22-18.

POTRERO—Wilshire Annex Oil Co., No. 2, 34-2-14.

LOUISIANA

IBERIA PARISH—Jefferson Lake Oil Co., New Orleans, Lake Peigneur 24, ..-12s-5e- 660 ft s 79° 3 Min. w of No. 3.

UNION COUNTY—Drillers' Oil & Dev. Co., J. P. Pickering 1, 220 ft n and 660 ft e, swc nw nw, 1-17-16.

TEXAS

BROWN COUNTY—B. D. Dozier, Brownwood, Cleveland, 80, 1, S 19, H. Kraber sur, 250 ft from n and e lines.

CALLAHAN COUNTY — Drew Beams, Okmulgee, I. N. Jackson, 320, C2 S 14, E. T. Ry. sur, 660 ft from n and e lines of sec. Hart Bros. et al, Baird, C. A. Grisham, 40, 1, 2300 TE&L sur, 300 ft from n and e lines of sw¼ of n½.

COOKE COUNTY—E. J. Ruwalt, Gainesville, H. M. Berry, 385, 1, T. B. Hardwick sur, 150 ft from nw and 750 ft from ne line.

FISHER COUNTY — Cranfill & Reynolds, Houston, J. C. George, 160, 1, S 200, BBB&C, B 1, 397 ft from n and 330 ft from e line of sec.

GREGG COUNTY—Corrected location. Superior Oil Co., Dallas, H. Pritchard, A, 100, 1, F. W. Johnson sur, 2187 ft from n and 306 ft from w line. Barnsdall Oil Co., Tulsa, Okla., J. G. McGrede, 84, 12, D. Sanchez sur, 330 ft from w and 430 ft from s line. D. Smith, 40, 5, J. S. Caruthers sur, 550 ft from n and 330 ft from w line. J. G. McGrede, 84, 8, D. Sanchez sur, 330 ft from n and w lines. Arkansas Fuel Oil Co., Shreveport, La., P. D. Harrison, 128, A2, Wm. Robinson sur, 150 ft from w and 275 ft from s line. J. C. McKinley, 50, C1, Wm. Robinson sur, 330 ft from n and e lines. J. A. Whitaker, 75, 4, C. H. Alexander sur, 361 ft from n and 330 ft from e line. M. D. Allison, 62, 2, Wm. Robinson sur, 330 ft from n and e lines. B. J. Adrian, 60, 2, W. H. Castleberry sur, 330 ft from s and e lines. E. M. Bealle, 41, 4, F. Cordova sur, 330 ft from s and w lines. G. B. Tenery, 22, 1, Wm. Robinson sur, 246 ft from n and 330 ft from w line. F. K. Lathrop, 96, A6, Wm. Robinson sur, 618 ft from n and 130 ft from e line; Magnolia Pet. Co., Dallas, E. H. Brawley, 80, 2, P. McAnelly sur, 660 ft nw of No. 1. C. Davis, 66, 3, W. H. Castleberry sur, 330 ft from s and w lines. S. J. Everett, 171, 8, L. J. Rigsby sur, 330 ft from s and e lines. O. F. Smith, 92, 3, H. H. Edwards sur, 450 ft from w and 425 ft from s line. L. Walker, 22, 2, D. Sanchez sur, 330 ft from w and 377 ft from s line. Mook-Texas Oil Co., Fort Worth, D. Rodden, 23, 3, D. Sanchez sur, center. B. K. Isaacks, Fort Worth, T. B. Harris, 60, 1, Jno. Ruddle sur, 330 ft from s and w lines. Humble Oil & Ref. Co., Houston, M. Wells, 70, 2, M. Irwin sur, 330 ft from s and w lines. W. R. Hughes, 185, 5, D. Sanchez sur, 255 ft from n and 330 ft from e line. A. Carter, 90, 4, D. Ferguson sur, 330 ft from n and e lines. D. Johnston, 57, B2, L. J. Rigsby sur, 330 ft from n and w lines. G. W. Willingham, 50, 1, D. Sanchez sur, 330 ft from n and w lines. D. Thomas, 59, 5, M. Van Winkle sur, 164 ft from ne and 617 ft from se line. W. E. Turner, Longview, A. Jones, 63, 4, G. W. Hooper sur, 660 ft w of No. 1. Peterson & Merritt, Gladewater, School, 3, 1, M. Dillard sur, center of blk. 21. Sun Oil Co., Dallas, J. R. Beall, 180, 7, W. P. Chisum sur, 330 ft from s and e lines. Hilburn-Loyd, 133, 6, W. P. Chisum sur, 400 ft n of No. 4. F. H. Etheridge, Tyler, Weiss, 66, 1, Armendaries sur, 330 ft from s and w lines. Williams, 37, 2, G. F. Penn sur, 430 ft from s and w lines. Alma Pet. Corp., Okla, City, Okla., J. W. L. Younse, 86, 2, Wm. Goodwin sur, 200 ft from s and w line. O. G. Murphy, El Dorado, Ark., J. B. Doby, 45, 1, W. H. Castleberry sur, 330 ft from n and 300 ft from e line; 2, 680 ft s of No. 1; 3, 680 ft s of No. 2. East Texas Refining Company, Dallas, A. Christian, 41, 1, G. W. Hooper sur, 364 ft from e and 350 ft from s line. H. R. Smith, Luling, D. M. Peterson, 6, 1, M. Van Winkle, B. Laird, 8, 1, M. Van Winkle. Deep Rock Oil Co., Tulsa, Okla., A. Z. Jeffrey, 26, 1, W. P. Chisum sur, 150 ft from s and e lines. W. M. Matthews, Longview, L. Martin, 20, 1, W. P. Chisum sur, 168 ft from w and 330 ft from s line. Texas Co., Shreveport, La., M. T. Cole, 220, 3, E. L. Walker sur, 1056 ft n of No. 2. S. D. Walker, 213, 2, S. L. Davis sur, 330 ft from e and 990 ft from s line. G. W. Clark, 60, 4, G. A. Thomason sur, 1100 ft from w and 330 ft from n line. W. Davis, 64, 4, W. P. Warraner sur, 330 ft from n and 338 ft from w line. H. T. Elder, 86, 5, M. Scott, 3, sur, 330 ft from s and e lines. Empire Gas & Fuel Co., Gladewater, L. A. Peter, 121, 3, J. R. Crosby sur, 1520 ft from e and 330 ft from n line. J. L. Spurrier, 52, 1, W. H. Castleberry sur, 330 ft from n and e lines. Jos. Bander, 93, 3, W. H. Castleberry sur, 1470 ft from w and 330 ft from n line. L. A. Jeter, 121, 2, J. R. Crozby sur, 750 ft n of No. 1. Lucey Pet. Co., Longview, M. Fisher, 65, 1, W. H. Castleberry sur, 330 ft from n and w lines. Vireca Corp., Refugio, M. T. Cole, 15, 1, A. Park sur, 318 ft from w and 513 ft from s line. Henry Hobbs, Tyler, T. W. Lee, 3, 1, M. Dillard sur, 175 ft from sw and 130 ft from se line blk 63. Selby Oil & Gas Co., Tulsa, Okla., Snavely, 361, 2, F. W. Johnson sur, 330 ft from n and e lines. Snavely, 214, 4, Wm. Tyndale sur, 1950 ft from n and 330 ft from w line. Snavely, 118, 3, J. R. Crozby sur, 330 ft from w and 280 ft from s line. Adams and Lyles, Lockhart, T. Anderson, 62, 1, Jno. Ruddle sur, 330 ft from n and e lines. Amerada Pet. Corp., Fort Worth, M. Killingsworth, 100, 1, H. Hathaway sur, 295 ft from n and 250 ft from e line. Tidal Oil Co., Ft. Worth, E. M. Nettleton, 48, 1, Jno. Ruddle sur, 200 ft from e and 390 ft from s line; 3, 1039 ft from e and 250 ft from s line. W. E. Jones, 80, 3, G. W. Hooper sur, 1300 ft from w and 330 ft from n line. A. F. Shepperd, 114, 2, T. Allen sur, 330 ft from s and w lines. J. R. Beall, 80, 6, W. P. Chisum sur, 1550 ft from s and 435 ft from e line; 5, 1554 ft from n and 420 ft from e line. Foshee and Barker, Gladewater, Fee, 4, 1, H. R. Hokit sur, 150 ft from n and w lines Inland Oil Co., Dallas, H. Key, 6, 1, Jno. Ruddle sur, 200 ft from n and 120 ft from e line. Combination Oil & Gas Co., Amarillo, W. Holt, 22, 1, Jno. Blair sur, 330 ft from n and 290 ft from w line. Arcadia Ref. Co., Tyler, J. R. Beall, 27, 1, M. Van Winkle sur, 292 ft from w and 450 ft from s line. Columbia Oil & Gas Co., Dallas, G. A. Castleberry, 14, 1, D. Sanchez sur, 350 ft from n and 275 ft from e line. Feshee & Bradley, Gladewater, Fee, 4, 1, H. R. Hokit sur, 200 ft from n and e lines. Roeser & Pendleton, Inc., Ft. Worth, J. E. Sheffield, 50, 2, D. Sanchez sur, 255 ft from n and 232 ft from w line. B. Rodden, 32, 3, Wm. Robinson sur, 215 ft from e and 610 ft from s line. Shell Pet. Corp., Dallas, W. L. Brawley, 27, 1, D. Sanchez sur, 155 ft from n and 416 ft from w line. Williams, 36, 2, M. Van Winkle sur, 285 ft from e and 247 ft from s line. O'Neill & Wallace, Tyler, E. L. Walker, 20, 1, Jno. Tate sur, 330 ft from s and e lines. W. D. Ambrose, Fort Worth, Geo. Jones, 40, 2, G. W. Hooper sur, 330 ft from n and e lines. Sabinas Oil Corp., Longview, T. M. Collins, 126, C3, G. W. Hooper sur, 330 ft from s and w lines. Shasta Oil Co., Longview, E. G. Richie, 24, 1B, C. Rhode sur, 403 ft from e and 330 ft from s line. J. O. Whittington, Longview, J. C. Bumpas, 31, 1, W. H. Castleberry sur, 330 ft from s and w lines. Atlantic Oil Prod. Co., Dallas, W. H. Moyer, 128, 2, T. McGee sur, 990 ft from n and 330 ft from e line; 3, 330 ft from s and e lines. J. M. Moore, 434, 1, F. W. Johnson sur, 330 ft from s and w lines. Stanolind Oil & Gas Co., Longview, W. F. Wilhite, 29, 2, G. W. Hooper sur, 200 ft from w and 330 ft from s line. M. G. Brady Drilling Co., Houston, Moore, 1, M. Dillard sur, 142 ft from n and 125 ft from e line blk. 52. Petroleum Finance Corp., Longview, A. M. Kinsel, 23, 1, H. H. Kirk sur, 287 ft from w and 290 ft from s line. M. E. Gaskill, Tulsa, Okla., S. J. Kay, 25, 3, L. J. Rigsby sur, 348 ft from n and 330 ft from e line. C. M. Young, Dallas, E. Smith, 11, 1, M. Scott sur, 150 ft from n and w lines. F. H. Etheridge, Tyler, C. Jones, 14, 1, G. W. Hooper sur, 300 ft from n and 158 ft from e line. Hankamer & Lee, Tyler, C. Jones, 5, 1, G. W. Hooper sur, 320 ft from n and 151 ft from w line. Cox & Hamon, Ardmore, Okla., L. A. Rodden, 110, 2, Croszby & Rigsby sur, 345 ft from n and 330 ft from w line. Yount-Lee Oil Co., Beaumont, J. C. McKinley, D, D1, Wm. Robinson sur, 330 ft from n and w lines. J. C. McKinley, C, C3, Wm. Robinson sur, 330 ft from n and e lines. S. G. Smith, A2, Wm. Castleberry sur, 330 ft from n and e lines. P. Hopkins, 3, W. H. Castleberry sur, 330 ft from n and w lines. V. Colvin, 2, H. Hathaway sur, 1825 ft from n and 2275 ft from e line sur. J. C. McKinley, E, E1, Wm. Robinson sur, 2750 ft n and 3375 ft from w line of sur. Correction. A. A. Castleberry, 1, Wm. Robinson sur, 330 ft from n and w lines. B. Rodden, 80, 2, Wm. Robinson sur, 800 ft from w and 330 ft from n line.

GALVESTON COUNTY — Yount-Lee Oil Co., Beaumont, Cade, 23, N. Fitzsimmons sur, 1645 ft from n and 860 ft from e line.

GOLIAD COUNTY—Camp & Stanolind Oil & Gas Co., San Antonio, J. F. Pettus, 1960, 2, M. J. Y'Barbo sur, 1589 ft nw of No. 1.

GRAYSON COUNTY — Holtslander & Kusch, Sherman, J. F. Miller, 432, 1, T. P. C. Lott sur, 1200 ft from n and 625 ft from e line.

KENEDY COUNTY—United North & South Oil Co., San Antonio, W. Morell, 125, 1, C. Martinez sur, 330 ft from w and 990 ft from s line.

PANOLA COUNTY—G. A. Davision, Garthage, A. H. Latham, 160, 1, W. M. Rich sur, 990 ft from w and 600 ft from s line.

(Continued on page 78)

For Tabulation and Comparison See Market Section

Wildcat Reports From All Sections

▼ ▼ ▼

SOUTH TEXAS

ATASCOSA COUNTY—Glen Mathis' Mrs. G. M. Martin 2, Navarro sur, 3 mi s Amphion, 100 ft sw No. 1, dr 2940 ft.

BASTROP COUNTY—W. A. Allen's Birmingham 1, King and Millett sur, dr 1220 ft. Mid-States O&G Co.'s Wickmann 1, Castleberry sur, move on to deepen. Texas Dev. Co.'s C. H. Ray 1, Thos. Christian sur, 1½ mi ne Elgin, dr 100 ft.

BEE COUNTY—Cosden Oil Co. & Rowan and Moore's Freeland 2, John Pace sur, 1600 ft w Cosden pool, sd 4297 ft. Houston Oil Co.'s J. F. Portis 2, A. Smalley sur, sw Pettus pool, lcn. J. C. Hughes et al's P. H. Martin 1, John Lyford sur, just s Holzmark pool, prep to spud in. Humble Oil and Ref. Co.'s Laura Thompson 1, Garrett Roche sur, dr 800 ft. Lefevre & Buchanan's Geo. A. Ray 1, elev 342 ft, Jno. A. Wiliamson sur, 2800 ft w Damac producer, sw Pettus pool, dr 3500 ft, shale top Jackson 2950 ft. J. S. Mauldin's Mauldin 1, G. A. Kerr sur, just s Pettus townsite, sd 3930 ft. Mineral Oil Co. (Mauldin & Fisher) A. J. Kimball 1, Stephin Winship sur, Grayburg district, 7 mi sw Pettus, sd 3550 ft. T. B. Slick Estate's Geo. A. Ray 1, elev 329 ft, G. A. Kerr sur, sw Pettus pool, sand 3931-39 ft, set csg 3928 ft, dr in; Geo. A. Ray 2, Geo. A. Kerr sur, lcn; Geo. A. Ray 3, Geo. A. Kerr sur, lcn. United Prod. Co.'s Ray 39, T. Hanson sur,just ne field, dr 5705 ft. H. H. Weinert's Geo. A. Ray 1, Jno. A. Williamson sur, sw Pettus pool, w of Damac well, lcn.

BEXAR COUNTY — J. E. Anderson's Suburban Irrigated Farms 1, C. Logan sur, near Kirk, 20 mi sw San Antonio on Chicon Lake feult, dr 830 ft. Gatlin Oil Co.'s Beck 9, A. Montez sur, move on. Ewell Neill's J. M. Watson 1, Martinez sur, 10 mi s San Antonio, dr 300 ft. W. S. Rogers et al's L. Dunlop 1, Juan Montez sur, sd 612 ft. Schneider, Rees et al's Claussen 1, 12 mi no San Antonio, SJ &A sur No. 17, sd 863 ft. Tri-State Oil Co.'s Corruth 1, F. Bolen sur, su r, sd 770 ft. Whipple et al's Gembers 1, nw Dobrowolksi district, lcn to be made.

BLANCO COUNTY—Hardy Sitton's Standeford 1, sur 155, 3 102 nw Blanco City, dr below 1100 ft last report; McMillen 1, Benjamin Williams sur No. 125, 2 mi Blanco City, sd 686 ft. Forest Oil Co.'s Rosenfield et al) Hohenberger, sur No. 94, sd 712 ft. Thomas Hicks et al's Specht & Wiedner 1, Thos. M. Fowler sur No. 27, 2 mi s Twin Sisters, dr 1065 ft.

CALDWELL COUNTY—Joe Bruner's Malone 1, A. Floyd sur, 2 lcns s Salt Flat, oil coming through mud, prep to complete, csg set 2395 ft, td 2572 ft, mi se Lockhart, spudded and sd acct water. Ralph Ogden's Mrs. Sue Nealson 1, John B. Gray sur, 3 mi n Lockhart, sp in.

COMAL COUNTY—Caldwell & Lanier's T. J. Byler 1, 10 mi s Blanco City, HE&WT sur No. S-894, sd 754 ft.

DE WITT COUNTY — Gibson & Strum's Clark 1, Dolores Alderete sur, 3 mi s Yorktown, ru and sd.

DUVAL COUNTY—John F. Camp & Stanolind O&G Co.'s Hubbard 2, sec 73, BS&F sur, 1 mi sw No. 1, 3 1/3 mi se S&O pool, dry and aband 2509 ft. Cole Pet. Co.'s Benavides 70, e of Cole field, move on. Duval Oil Co.'s Bishop Cattle Co. 5, sw extension S&O pool, 660 ft w No. 4, Sec. 135, completed 1000 bbls, choked into 500 bbls, brokn sand 2293 to 2307 ft. Frank Garvis's Shallert 1, sur 255, dr 1300 ft. Humble O&R Co.'s P. E. White 1, Sec 58, S&O pool, swabbing in, sand 2313-20 ft. Magnolia Pet. Co.'s Wilson 4, Sec. 134, S&O pool, put on standard rig, will pump abt 400 bbls, td abt 2330 ft; Wilson 5, Sec. 134, S&O pool, move on. Southern Gas Utilities Co.'s A. Benavides 1-E, nw cor sec 173, sp in. Thomas & Tarver's Bishop Cattle Co. 3, Sec. 135, S&O pool, completed 800 bbls on 5/8-inch choke, 1800 bbls open flow, sand 2315-21 ft, csg set 2285 ft; Welder Wood 1, 16 mi from S&O pool on Welder-Wood ranch, dk.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn — abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd — shut down; sdtr — sidetracking; sp — spudding; sr — straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

FRIO COUNTY—Arthur H. Wray's Roche 1, sec 123, A. Hutzler sur, near Big Foot, 1500 ft sw Burns 1, dr 2404 ft.

GOLIAD COUNTY — Plymouth Oil Co.'s Parks 1, 2900 ft se Gibson Parks 1, ru. Stanolind O&G Co.'s John F. Camps Pettus 2, abt 2000 ft nw Pettus 1, dr 2285 ft, sticky gumbo.

GUADALUPE COUNTY—Harry Bruner's Jim Sherrill 2, Geo. Allen League, near Staples, sd 190 ft for rotary. John F. Camp's Dan Denman 1, Wm. Arrington sur, 2500 ft s Camp well, set 61 ft surface csg, re-dr. Humble Oil and Refining Co.'s Dan Denman 1, Wm. Arrington sur, 900 ft s Camp producer, dk. W. M. Eiser et al's Wells 1, ne quarter Jose de la Baume sur, lcn. Barnhill & Breavers Hoffman 1, near Gonzales road, dk. C. McGarity et al's August Wesch 1, H. M. Thompson sur No. 89, 2 mi n Marion, sd 1200 ft. Schleter, Atherton & Armstrong's Ogletree 1, Robt. Smith sur, 1 mi n old Luling field, sd 1745 ft.

HAYS COUNTY—J. C. Jones et al's Byler 1, John Ingram sur, 15 mi nw San Marcos, sd 925 ft.

JIM HOGG COUNTY—D. C. DeWitt's T. Gomez 1, sec 12, sd 400 ft. Cole Pet. Co.'s Palacios 1, sur 231, 3 mi s and e Randado field, cored sand 1905 ft.

JIM WELLS COUNTY—Larcro G. & Pet. Co.'s Wade 2, 800 ft s No. 1, Larcro gas field, sd 2355 ft. Stanolind O&G Co.'s N. A. Hoffman 1, La Trinidad sur, 4½ mi sw Ben Bolt, dr 2726 ft, sand and shale.

KARNES COUNTY—V. F. Neuhaus's L. L. Russell 1, C. Martinez sur, just n Kennedy-Runge Highway, wait on rig. Jones et al's (J. Morrisey) Cochran 1, D. B. McConnell sur, w Kennedy, re-dr 1012 ft.

KENDALL COUNTY—Borgett et al's W. Hagg 1, w Avery sur, sd 1250 ft. F. S. Dibble's Ellebracht 1, TW&NG Sur No. 77, 12 mi n Sisterdale, sd 50 ft. Dixon Oil Co.'s Behr 1, Jessie Wilson sur, 3 mi s Sisterdale, dr 2713 ft at last report. R. M. Perkins' (W. H. Sartain) Lawhorn 1, 30 ft sw original test, D. L. Richardson sur, sw Kendalia, no report. Hardy Sitton's W. B. Garvin 1, D. L. Richardson sur, 1 mi ne Kendalia, sd 1480 ft.

KERR COUNTY—Evans and Gant's Seiker and Mears 1, CCSD&RGNR Ry. sur, sec 1605, 2 mi ne discovery, sd 4031 ft sandy shale. Jeff Love 1, J. Martinez sur, No. 1594, sd 4060 ft brown lime. Evans and Sprinkle's Jeff Love 2, sec 1592, ½ mi se discovery, set csg 3270 ft, cored sand 3035-80 ft, show gas. Chester A. Martin's J. E. Young Im, A. E. Bruce sur, ne discovery, 1310, move on 12½ inch casg.

LA SALLE COUNTY—Buckley Ranch O& G Co.'s Buckley et al 1, sur 37, Buckley-Walling ranch, dr 1720 ft. Salt Lake City Oil Co.'s 2, 708 ft sw 1, Sec. 17, dr 1100 ft.

LIVE OAK COUNTY—Henderson Coquat et al's H. Hewitt 1, Thomas Adams sur, sec 4, sd 445 ft.

MAVERICK COUNTY — I. N. Boicourt's Bandera School Land 2, dr 2295 ft. Texas Gas Utilities Co.'s Chittim 8, sec 129, blk 7, I&GN sur, Chittim field, sd 4810 ft.

McMULLEN COUNTY — A. E. Adams' Martin 1, L. E. Melon sur, 15 mi sw Tilden, dr 750 ft. Brodie, Shearer and Emerich's Shiner 1, Henery Brewer sur, 12 mi se Tilden, sd 2006 ft.

MEDINA COUNTY — Frank A. Brown's Jacob Fohn 1, J. F. Tony sur, 8 mi s Hondo, fsh 922 ft. National Oil Co.'s 1, lcn being made.

NUECES COUNTY—Gulf Coast Oil Co.'s Sagarin 1, Sec. 1V9, Kinney sur, Saxet field, dr 3521 ft sandy shale; Elder 1, nw Harrell 1, Saxet field, dr 4590 ft, sand 4575-81 ft, show sw. Neal-Milton & Kepley Prod. Co.'s Roark 1, 200 ft nw Saxet Dunn, Saxet field, dr 4650 ft, sandy lime. Saxet Oil Co.'s McCampbell 1, H. L. Kinney sur, Saxet field, completed gasser, 2429 ft, show 500 lbs. pressure on tubing and on 3/8-inch choke. Stanolind O&G Co.'s (Southern Crude Oil Purchasing Co.) Chas. E. Stratton 1, sec 12, Stratton sub, P. Anchow sur, 6 mi s Agua Dulce, sd for orders, td 4765 ft. L. L. Smith's Alexander 1, Saxet field, dr 2440 ft.

REAL COUNTY — Evans and Sprinkle's Haby 1, AB&M sur, 7 mi sw Love 1, sec 175, set 8¼ inch csg 2560 ft.

REFUGIO COUNTY — Blanco Creek Oil Corp.'s Dammann 1, blk 16, Bonnie View Ranch sub, 8 mi s and e Refugio field, sd 4685 ft. Humble O&R Co.'s M. V. O'Conner 1, John Keathing sur, near Victoria line, sand 3743 ft, showed sw, deepened to abt 3750 ft, blew in wild, still out of control. Larcro Gas & Pet. Co.'s Strauch 4, lot 6, blk 2, Refugio townsite, lcn made, not to drill until after Oct. 15. Moody-Seagraves Prod. Co.'s Strauch 1, Refugio blk 8, bldg dk over, lcn to work over; O'Conner 4, plugged back from 5456 to 6380 ft, sidetracking. United Prod. Corp.'s O'Brien 6, Refugio, sd 6450 ft; W. J. Fox 2-A, Wm. Hews and L. Brown sur, Refugio, dr 3650 ft; M. F. Lambert 4, Wm. Hews & L. Brown sur, Refugio, 5½-inch cas set 5812 ft, wait on cement, td 5925 ft, sand 5813-29 ft.

SAN PATRICIO COUNTY—Atlantic Oil Producing Company's Welder 1, on Welder ranch, about 1½ miles from gas field, to make lcn. Welder Oil Corp.'s Welder 3, 900 ft ne No. 2, Welder gas field, dr 900 ft.

TRAVIS COUNTY—Fritz Fuch's L. Ballerstadt 1, Amos Alexander sur, dr 1225 ft; A. F. Smith 1, Kimbor sur, lcn. C. R. Franklin's J. Wilson 1, A. Alexander sur, dr 304 ft. Henze & Ray's J. M. Hatch 1, center S. Hamilton sur, dr 375 ft.

VICTORIA COUNTY—C. R. & M. Co.'s C. R. Keenan 1, lcn. Houston Oil Co.'s Konrad 1, T&NO sur, on Beck Salt Dome, n Victoria, dr 5044 ft, heaving shale. The Texas Co.'s McFadden 3, John M. Rine sur, nw No. 2, set csg 4278 ft for protection. United Prod. Co.'s McFadden 5-A, C. L. Mann sur, ne No. 4-A, sand 3754-59 ft, test 400 lbs in 7 min on 5/8-inch choke, csg set 3746 ft, completing.

WEBB COUNTY—Cole Pet. Co.'s (Carson) Benavides 2 (4), 12 mi e Laredo, sur 1601, sd abt 3950 ft. French Oil Corp.'s R. Benavides 6-A, Cole district, sur 659, dr 300 ft. Eugene Garner, Jr.'s A. S. Billings 1, sur No. 71, dk. O. W. Killam's Bruni 20, Cole district, Mariano Arispe Grant, sur 9, completed 10,000,000 cu ft gas, 620 lbs. pressure, td 2327 ft; Bruni 21, sur 9, Mariano Auspe Grant, move on; Bruni 3, lcn. Winfield Killam's S. N. Johnson 1, sec 1618, Cole district, dr 1450 ft. Magnolia Pet. Co.'s Benavides 5-A, Cole district, sur 660, csg set 2330 ft, top sand 2335 ft, dr out plugs. Geo. S. Marshall's Benavides 1, Carolino-Texas District, sur 683, lcn. Power & Dettenhaim's Cowan & Goss 1, sur 1606, spud in.

WILLIAMSON COUNTY — Citizens Oil Dev. Co.'s A. Forewood 2, A. S. Fisher sur, 6 mi ne Taylor, abnd 1586 ft. H. Fritz et al's fee 2, HT&B Ry. sur, 3 mi sw Taylor, 35 ft n No. 1, dr 930 ft. Hays and Gee's E.

G. Johnson 1, B. C. Low sur, s Georgetown, fsh 1336 ft. McLean's et al's Miller 1, Manlove sur, dr 1670 ft. R. S. Wilson's J. S. Speckley 1, J. Jordan sur, 1 mi n Coupland, sd 885 ft.

WILSON COUNTY—August M. Blume's Nickelson 1, C. Diaz sur, 2½ mi s Floresville, change from spudder to rotary, td 1245 ft.

ZAPATA COUNTY — Ballard & Mercer's Flores 1, Marks sub of Porcion 37, lcn. E. K. Bateman's M. Garza Estate 1, blk 29, sub of Zorro ranch, Los Comitas Grant, s end of Muckelroy pool, spud in. F. H. Etheridge's Henne-Winch 1, sur 286, ne Bustamante, test sw 1781 ft, dr ahead; Jose Bustamante 1, sur 80, Jennings pool, ru. W. T. (Bill) Henry's Adams 1, blk 10, sur 4, Fullerton sub of Share 8, Borego Grant, prep to re-dr 1375 ft. O. W. Killam's Cuellar 28-A, Cuellar extension, dr 1450 ft; Cuellar 29-A, Cuellar extension, lcn; Cuellar 30-4, lcn. National Oil Co. of Texas' Luther et al, blk 97, Da Pren sub ne ½ Porc on 6, sd 610 ft. Nielson and Coursey's Adams (Luther) et al 1, blk 11, sec 5, Fullerton sub, Share 8, Borrego Grant, sd 1320 ft, to be dr deeper. Penny Prod. Co.'s Juan V. Cuellar et al 1, blk 1, sur 2, Pappas sub, Porcion 33 and 34, sd 2055 ft. Pray and Chamberlain Prod. Co. Inc.'s, (Whicker), Garza 5, sub of Zorro ranch in Los Comitas Grant, s extension Muckelroy pool, sp in. H. L. Sargent's Gutierrez 1, blk 3, Porcion 10, Borego Grant, prep to spud. Trevino Oil Corp.'s Trevino 11-A, blk 5, sur 65, complete 25 bbls at 1215 ft; Trevino 12-A, blk 5, sur 65, move on. C. J. Webster O&G Co.'s P. B. Trevino, lcn. T. H. Ward's Uribe 1, sub of share 7, partition 6, Trinidad Uribe Partition of Juan V. Borrego Grant, ru and sd.

CENTRAL EAST TEXAS

Completions

LEON COUNTY—
Deep Rock Oil Co.-J. M. Ogg et al, Pearl Stone 1 ..... * 5005

TEXAS GULF COAST

Completions

HOUSTON COUNTY—
Jones, Irish Dev. Co., Mrs. B. Waters 1 ..... * ....

NEWTON COUNTY—
R. T. Briscoe, R. C. Windham 1.. * 1200

POLK COUNTY—
Sunshine Oil Co., Oliver 1 ..... * 4000

BRAZORIA COUNTY — The Texas Co.'s Belcher 2, lcn 1000 ft se Belcher 1, and 1728 ft se and 1231 ft sw at rt angles out of n cor of ls; Belcher 1, sanded up. United Oil Syndicate's Levitt 1, 3 mi n Danbury, sd 1600 ft.

BURLESON COUNTY—Marek & Sons' A. Marek 3, 2½ mi sw Tunis, dr sh 1432 ft. Marts et al's Boyett 1, 5 mi se Wellbourne, dr sh 2826 ft. Mid-South Oil Co.'s Duckworth 1, near Clay Station, prep to test w sn at 3065 ft.

CHAMBERS COUNTY—Gulf Prod. Co.'s J. F. Wilburn 5, 4484 ft o. s. set 7 -inch cas 4430 ft. Humphrey Corp.'s Kirby H-8, Barbers Hill dist, 2355 ft salt; Eberspacher 1, Barbers Hill, 4962 ft gbo; E. H. Winfree 6, flwing by heads at 5620 ft. Sun Oil Co.'s O. H. Winfree 2, Barbers Hill, sdy sh shwg oil at 5130 ft, setting 7 -inch O. D. cas.

FORT BEND COUNTY—Cullen & West & Gulf Prod. Co.'s George 2, 600 ft e George 1, Thompson dome, 4780 ft w sn; Lockwood-Sharp 2-A, Thompson dome, 4875 sh; Lockwood-Sharp 3-A, tested dry gas 3110-3135 ft, 300 lbs wide open; Lockwood-Sharp 4-A, dk 550 ft w 2-A. Stone & Wyman's Beard 1, between Long Point & Damon, dr gbo 1197 ft.

GALVESTON COUNTY — Yount-Lee Oil Co.'s Cade 22, High Island, 125 ft s Cade 21, dr 4475 ft sdy li; Cade 23, dr 998 gbo.

GRIMES COUNTY—Rianjo Oil Co.'s Cuthrell 2, 3 mi e Carlos, dr 2593 ft sh.

HARRIS COUNTY—H. H. Givens & Daybault's Lobit 1, near Addicks, dr hd sh 2122 ft. Gulf Prod. Co.'s Taylor 33, Pierce Junct., 1237 w sn and bldrs. Highland's Pet. Corp.'s Haney 1, 5 mi w Barbers Hill, 3955 hd gbo and li. Alexander et al's Hermann Hale 1, R. A. Hanks sur, sd at 2206 ft.

HILL COUNTY—C. Houseman's Griffith 1, Waddell sur, sd at 2968 ft.

HOUSTON COUNTY — Apex Drlg. Co.'s Thompson Bros. Lbr. Co. 1, 6 mi s Lovelady, reported strong show gas 2354-65 ft, sd. Jones Irish Dev. Co.'s Mrs. B. Watters 1, 5¼ mi n Lovelady, abn after spudding.

JACKSON COUNTY — Chicago-Gulf Co.'s Drushell 10, Edna dist, dr 662 ft.

JEFFERSON COUNTY — Humble O&R Co.'s Ross B. Nelson 1, R. B. Nelson 1072-ac tract in Wm. Rice Hrs. sur, ru. John I. Pipkin & Elam's Broussard 1, M. Broussard 206-ac tract in McGaffy sur, dk.

LIBERTY COUNTY—L. B. House's C. T. Palmer 1, ¾ mi s Cleveland, sd 2715 ft. Humble O&R Co.'s Sterling 8, Moss Bluff, dr 5116 sn.

MATAGORDA COUNTY—Harvey Smith's Boker 1, Citrus Grove dist., lcn 2000 ft s and 2000 ft e of nw cor of Lot 14, in Lot 15, Robbins subdiv, J. V. Criswell sur.

MILAM COUNTY—C. M. Joiner's (Red Bank Oil Co.'s) J. A. Foster 1, 12 mi e Cameron, dr chlk 4418 ft. Dil Tex Oil Co.'s E. Lawson 1, Fernando Rodriguez sur, dr 1831 ft.

MONTGOMERY COUNTY—Humble O&R Co.'s W. A. Renn 1, 4 mi s Magnolia, set 13⅜ inch cas 1932 ft, dr 2377 ft. G. W. Strake's So. Tex. Dev. Co. 1, 2½ mi se Conroe, dr 3497 ft, set 400 ft of 13⅜-inch cas.

NACOGDOCHES COUNTY—Ginter et al's Neil Wells 1, 15 mi se Nacogdoches, M. H. Chireno sur, tested sw at 3278 ft, dr at 3296 ft. Hayter, Whited & Mast's G. L. Muckelroy 1, Martinsville dist., fsh for dr st and bit at 3165 ft. Taylor & Vaughn's Greer 1, 1 mi n Appleby, sd at 250 ft. G. A. Teague's Mattauer 1, Chireno sur, sd at 110 ft. Sequoia Oil Co.'s Robt. Douglas 1, 1½ mi s Cushing, fsh for dr st at 4423 ft.

NEWTON COUNTY—R. T. Briscoe's R. C. Windham 1, 8 mi se Newton, abn at 1200 ft.

ORANGE COUNTY—Crews Oil Co.'s Mansfield 1, Orange district, dr gbo 1725 ft. The Texas Co.'s Polk Kuhn Glass Co. 1, Port Neches, dr rk 1226 ft.

POLK COUNTY—T. B. Hoffer et al's Saner Ragley Lbr. Co. 1, 6 mi w Corigan, ru. Sunshine Oil Co.'s Oliver 1, 8 mi se Livingston, abn 4000 ft. Transcoastal Oil Co.'s M. E. Roberts 1, sd 730 ft.

TYLER COUNTY—Allied Prod. Co.'s Wilson 3, 16 mi ne Woodville, fsh for dr st, td 5020 ft.

WASHINGTON COUNTY—Penn Tex Oil Co.'s Kansas 2, Brenham district, dr 3412 hd sh.

WHARTON COUNTY—Barnes & Alexander's Hahn 1, Teton area, dr 1780 ft sh. W. H. Wallace's J. N. Lee 1, 2½ mi w Lissie, dr 1751 ft sh.

EAST TEXAS

HARRISON COUNTY—
O. H. Parkening, T. J. Taylor 1, Walter H. Payne sur ..... * 2530

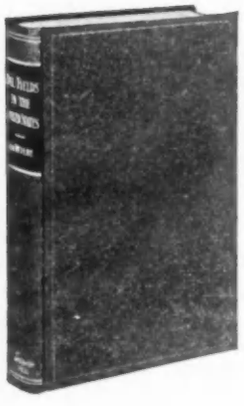
PANOLA COUNTY—
Southwestern O&G Co., Vinson 1, C. T. Anderson sur ..... * 2650

SHELBY COUNTY—
Glidden & Stephenson, Pickering Lbr. Co. 1, Jones Harrison sur... * 3854
T. W. Tennent et al, Henry 1, C. Z. Walker sur ..... * 3455

HARRISON COUNTY—O. H. Parkening's T. J. Taylor 1, Walter H. Payne sur, dry abn td 2530 ft shale and shells. Ryan Cons. Pet. Corp.'s J. M. Furrh 1, T. J. Copelain sur, rig. J. M. Gholson's Bivins 1, T. D. Peterson sur, sd 3085 ft. Marshall O&G Co.'s J. R. Watson 1, Thos. Iden sur, 15½ cas 260 ft sd 1850 ft chalk (5000 ft test planned). Lloyd Oil Corp.'s Timmons 1, Jno. Findley sur 10-in 240 ft dr 3060 ft lime.

MARION COUNTY—Rondeau & Hindman's Lindsay 1, Alex Albright sur, sd 2450 ft. J. W. Hamilton's Wood 1, Alex Albright sur, sd 2380 ft. Claunch et al's Laun 1, Henry Fulgram sur, sd 300 ft. Sheldon et al's Brown 1, E. B. Fowler sur, sd 3750 ft.

PANOLA COUNTY—Dillon & Bradham's Baldwin 1, Hampton West sur, sd 1555 ft. United Prod. Corp.'s Steele 17, B. C. Jordan sur, lcn. (Trinity test) Werner 11, D. B. Lewis sur, 15½ cas 383 ft setting 9-in cas 3526 ft (Trinity test). Southwestern O&G Co.'s



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HOUSTON **TEXAS**

Vinson 1, C. T. Anderson sur, 4½ cas 2415 ft sw abn td 2650 ft (corrected depth). Daisy O&G Co.'s Rucks Hrs. 1, Jno. Palmer sur, sd for water 3264 ft shale. Moses & Wallace's C. L. Daniels 1, Isabel Hanks sur, sd 650 ft. Hoffer et al's Cameron 1, W. A. Lagrone sur, dk. Davidson et al's Latham 1, Wm. Rich sur, rig up for deep test, td 550 ft. Nelson et al's Williams 1, Jas. Hanks sur, 12½ cas 400 ft dr 1863 ft gummy shale. Stamps et al's Chadwick 1, Wm. Scantleberry sur, rig.

SHELBY COUNTY — Chaparral Oil Co.'s Holt 2, Matthew Moore sur, claim sand core, sd 3127 ft. E. L. Chapman's Pickering Lbr. Co. 1, C. F. Henry sur, blew out est 25 mil ft gas, killed and set 365 ft 7-in cas sr at 3500 ft td 3983 ft. McRobie et al's Windham 1, Wm. Leach sur, 296-ac tract 12½ cas 276 ft top chalk 1930 ft cemtd 8¼ cas at 1750 ft td 2282 ft chalk rock, claim show gas. Maulding et al's Frost Lbr Ind 1, A. B. Fountain sur, top PG 2900 ft dr 3167 ft shale. H. H. Gracey's J. A. Morrison 1, Wm. English sur, sd dr water well td 2600 ft. I. M. Bradley et al's Asberry 1, G. W. Mitchell sur, sd 3280 ft sandy lime. T. A. Martin's J. A. Bush 1, Alfred Lindsay sur lcn abn. Schultz et al's Hughes 1, J. Clay sur possible base Georgetown 4146 ft fsh 4 joints ds td 4700 ft. C. H. Tautenhahn's J. C. Bogard 1, Thos. Baker sur, partly rigged up sd 20 ft. Glidden & Stephenson's Pickering Lbr. Co. 1, Jones Harrison sur, top PG 2486 ft base PG 3059 ft elev 269 ft 10-in cas 105 ft top Georgetown 3810 ft dry abn td 3854 ft in Georgetown. Ridgeway et al's Polley 1, Domingo Gonzales sur, sd wo cas 405 ft. Geo. L. Pace's Powers 1, Jno. Timms sur, lcn abn. T. W. Tennent's Henry 1, C. Z. Walker sur, (formerly carried in Jno. Spradley sur), top PG 2100 ft junked abn td 3455 ft in lime, drill stem stuck. K. H. Francis' John Mims 1, Mary Smith sur, 13⅜ cas 40 ft 10-in 393 ft top Midway 847 ft fsh ds at 2000 ft td 2950 ft. Smith et al's Carroll 1, J. A. Parker sur, 10-in 180 ft fsh ds td 3261 ft. United North & South Prod. Co.'s Windham 1, A. H. English sur, 171.5-ac tract dk.

SOUTHERN CALIFORNIA

ALHAMBRA—Yellowstone Oil Co.'s Huntington 1, 24-1-13, re-dr to 2900 ft, td 3920 ft, will run cas.

CALABASAS—L. W. Rucker's No. 1, 26-1-17, dr shale 600 ft. Simi Oil Co.'s No. 1, 16-1-17, dr shale 1975 ft.

FULLERTON—Standard's Bastanchury 1, 23-3-10, pumping water above plug at 5883 ft, td 8144 ft.

HERMOSA BEACH — Westwood Oil Producers' No. 2, 6-4-14, co 2045 ft, may make production test below 6⅝-inch cas at 2045 ft.

LOMITA—Higgins Brothers' Hamlin 1, m on cas 4780 ft.

NEWHALL—O. C. O. Oil Co.'s No. 1, 14-3-16, dr shale 880 ft.

NEWPORT—Ajax Pet. Co.'s B. G. 1, 16-6-10, dr shale 5338 ft. Nuoil Co.'s Gessell 1, 29-6-10, co 1370 ft. Superior's Irvine 1, 27-6-10, shale 1325 ft.

OCEAN PARK—Hines Pet. Corp.'s Happy Days 1, 8-25-15, recovered drill pipe at 6925 ft, will drill ahead.

PLAYA DEL REY—Cooperative Pet. Dev. Co.'s No. 1, 26-2-15, lcn.

ROSEMEAD—Rancho Oil Corp.'s Harmon 1, 30-1-11, sd 5974 ft.

SAN FERNANDO—El Caballero Estates' No. 1, 23-1-16, cmt 6¼-inch cas 1295 ft.

NORTHERN CALIFORNIA

KERN COUNTY

ANTELOPE VALLEY—Meridian Oil Co.'s No. 1, 11-9-15, drilled out cmt below 5¾-inch cas at 3750 ft, bailed water, td 3830 ft, will deepen.

BUTTONWILLOW — Graham-Loftus Oil Co.'s Carmel 1, 20-27-22, dr shale 2700 ft. Milham Exploration's Crites 1, 8-28-23, re-dr to 2672 ft.

BLACKWELL'S CORNER—Signal Oil and Gas Co.'s Lincoln 1, 15-26-19, sp.

DEVIL'S DEN — Cumberland Oil Co.'s Cumberland 2, dr shale 2318 ft.

LOST HILLS—General Pet.'s No. 1301, 13-26-20, fsh for drill pipe 4399 ft. Lincoln Pet. Co.'s Theta 1A, 12-26-30, dr oil sand 5340 ft.

McKITTRICK — California Oil Producers' No. 1, 30-30-22, dr shale 6515 ft. T. H. Purman's No. 1, 22-29-21, rigging rotary.

WEED PATCH—Osborn and Colter's Shell-Duff 2, 15-30-29, dr streaks oil sand and shale 2000 ft.

SANTA BARBARA COUNTY

COAL OIL POINT—Bolsa Chica Oil Corp.'s Permit 191-1, 24-4-9, plugged to 4250 ft, td 5510 ft, sd.

GOLETA—General Pet.'s More 3, 22-4-28, plugging off bottom at 6912 ft, will make test above plug. Ohio's Oakley 1, 16-4-28, dr shale 4015 ft. Strickland and Tippett's Duncan 1, 19-4-27, repairing cas, td 4500 ft.

SANTA MARIA—Western Gulf's Bradley 1, 5-9-33, dr shale 7345 ft.

VENTURA COUNTY

HOPPER CANYON — Bardeen Pet. Co.'s No. 1B, 13-4-19, 8⅝-inch cas cmt 1390 ft, oil sand cored below shutoff, td 1799 ft, will test.

OJAI—Rancho Reva Oil Co.'s No. 8, 28-4-23, dr shale 1500 ft..

RINCON — Chanslor-Canfield Midway Oil Co.'s Hobson A2, 23-3-24, plugged to 7825 ft, producing 150 bbls 20 gravity oil on compressor, td 10,030 ft. Continental's Grubb 1, 23-3-24, flowing by heads on preliminary shutoff test, td 6640 ft, will make commercial producer.

MISCELLANEOUS

FRESNO COUNTY—Associated's Jacalitos 1, 22-21-15, sd 6198 ft.

KINGS COUNTY—L. W. Seymour's No. 1, 10-23-16, sd 1150 ft. Knudsen and Schmidt's Avenal 1, 36-23-17, 6⅝-inch water shutoff failed at 4212 ft, td 4304 ft, will make further test. Eagle Oil and Gas Co.'s No. 1, 15-23-20, rigging rotary. Kettleman Lakeview Oil and Gas Co.'s No. 1, 20-23-20, 9⅝-inch cas cmt 1089 ft, td 1095 ft.

MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, 14-12-17, dr gray sand 7520 ft.

MONTEREY COUNTY—Pacific Inland Oil Co.'s No. 1A, 19-23-15, sd 1350 ft.

SAN LUIS OBISPO COUNTY—Trav-El Oil Co.'s No. 1, 7-32-21, co 2400 ft. Central Coast Investment Co.'s No. 1, 1-28-12, rigged to sp. C. J. Schilling's Potter 1, 1-29-12, dr shale and hard sand 1420 ft.

TULARE COUNTY—Ellis and Sandford's No. 1, 20-24-23, dr shale and hard sand 1565 ft.

KANSAS

SUMNER COUNTY—Trees Oil Co., Springate 1, ne se sw, 6-34-2e, dr 2228 ft. Spencer et al, Porter 1, ne sw 12-23-4w, hfw 3440 ft, dr 3677 ft. Otstot et al, Warlow 2, c se nw se, 22-33-3w, top Viola 4528 ft, Wilcox 4535 ft, td 4545 ft, sd hfw.

HASKELL COUNTY—Trees Oil Co., Warner 1, c se, 29-30-34w, 6-inch 2361 ft, td completed.

FORD COUNTY—Carter et al, Community-Everett 18, c ne, 22-20-21w, td 6088 ft, pipe stuck, fsh.

KINGMAN COUNTY — Panhandle Drlg. Co., Wetherall 1, c se nw sw, 20-28s-10w, rig.

STAFFORD COUNTY—Rosenthal, Stanclind, Amerada, Gray 1, c ne, 11-34-13w, td 3495 ft, ur 8-inch.

HARVEY COUNTY—Liggett et al, Davis 1, c sw se ne, 7-24-1e, sd 1400 ft sd.

FINNEY COUNTY — National Ref. Co., Wells 1, sw c 13-23-30w, dr 1105 ft.

HARVEY COUNTY—J. P. Flannigan, Sheridan 1, c sw, 32-22-1e, Base Big L. 3274, hfw 3400 ft, dr 3440 ft.

COFFEY COUNTY—Hegberg et al, Kroft 1, se sw se, 30-22-14e, 10-inch 818 ft, sd 1565 ft.

BARTON COUNTY—McCool et al, Isern 1, c sw se ne, 12-20-11w, 8-inch 2640 ft, dr 2960 ft. Skelton Oil, Ott 1, c se se, 16-19-14w, td 2800 ft, dr on ur lug. Syndicate Oil, Boertz 1, c nw se ne, 13-18-12w, sd 2450 ft.

CHASE COUNTY—Borden et al, Atkinson 1, nw se, 18-18-7e, machine, sd.

MORRIS COUNTY—Allender et al, Wycoff 1, c sw se, 5-17-7e, sd 105 ft sd. Urschel et al Bersuch 1, c nw se nw, 10-17-7e, ru and sd.

ELLSWORTH COUNTY—Keys et al, Gregory 1, sw c 23-17-9w, td 3200 ft, ur 8-inch.

MORRIS COUNTY—Hankenson et al, Cessnum 1, sw se, 24-17-9e, sd 2625 ft. sd.

ELLSWORTH COUNTY — Milton et al, Kaster 1, se ne 6-14-9w, 5-inch 3560 ft, 3605 ft, abn.

OSAGE COUNTY—Riggs-Smith, Wood 1, c se nw, 31-14-15e, 10-inch 1050 ft sd.

RUSSELL COUNTY — Austin Drlg. Co., Rockefeller 1, se c 6-13-12w, sd 3374 ft.

SALINE COUNTY — Twin Mounds Oil, Weis 1, c w½ ne nw, 30-13-4w (owd) td 2710 ft, dr by 8-inch.

DICKINSON COUNTY—Severs et al, Livingood 1, ne sw, 13-13-2e, sd 4170 ft sd.

RUSSELL COUNTY—Gilbreath et al, Bratton 1, c ne, 33-11-13w, pb 3189 ft, sd, abn.

LINCOLN COUNTY—Buck et al, Schulz 1, c ne ne sw, 19-11-6w, rog, abn.

GRAHAM COUNTY — Schleimeyer et al, Clark 1, sw ne ne, 11-9-25w, sd 4648 ft sd.

CLAY COUNTY—Nebraska Oil, Tivier 1, sw c 19-8-9e, sd 2700 ft.

SHERIDAN COUNTY — Flo et al, Shoemaker 1, se sw sw, 27-27-26w, td 3280 ft, ur 8-inch.

WASHINGTON COUNTY—Sincox, Penwell 1, nw se nw, 16-3-3e, sd 1720 ft.

RAWLINS COUNTY—Danciger et al, Unknown 1, sw c 3-2-35w, 6-inch 3495 ft, dr 3890 ft.

OKLAHOMA

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros., Forbes 1, ne c se nw nw, sd 1420 ft.

KAY COUNTY—T 27n, R 2e, Sec. 9, Mummer et al, Sornick 1, ne c se, hfw 2070-2170 ft, sd 3693 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden et al, Collmer 2, ne c se ne sw, sd 5640 ft, tools in hole.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey et al, Acre 1, c sw ne, show gas 5298-5303 ft, sd 5502 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer, White 1, se c nw, td 5850 ft, sd.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washamo Pet. Co., Philips 1, c nw sw, td 5120 ft, to abandon.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healey et al, Quier 1, se c sw, sd 3970 ft.

PAWNEE COUNTY—T 23n, R 5e, Sec. 15, Cochran et al, McFadden 1, ne c sw, rig. T 22n, R 5e, Sec. 2, Sherry et al. Milsap 1, se c sw, hfw 3505-50 ft, sd 3552 ft. T 20n, R 5e, Sec. 6, W. A. Rookstool et al, Berry 1, nw ne sw, sd 1951 ft, show gas.

OKFUSKEE COUNTY—T 12n, R 10e, Sec. 3, Shepperd et al, Shepperd 1, se nw sw, sd 3690 ft.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al, McDuff 1, sw nw se, show gas 5654-64 ft, dr 5766 ft.

LATIMER COUNTY—T 6n, R 19e, Sec. 16, P. English et al, Weaver 1, c nw se, sd 1542 ft.

OKLAHOMA COUNTY — T 12n, R 4w, Sec. 17, C. F. Cuniff, Trustee, St. Joseph 1, sw c ne sw se, sd 6700 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 19, Bunte et al, Bruner 1, se c nw, rig.

ROGER MILLS COUNTY—T 12n, R 24w, Sec. 23, Ute Oil Co. et al, Williams 1, c sw, sd 5150 ft. T 11n, R 26w, Sec. 4, J. J. Rook and Palmer, Davis 1, c nw ne (owd) 3240 ft sd.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey et al, Robinson 1, c ne nw, sd 150 ft.

WASHITA COUNTY—T 8n, R 19w, Sec. 29, Snodgrass et al, Blocker 1, nw c, dr 2330 ft. T 8n, R 18w, Sec. 21, Burns & Prince, Dock 1, sw c, co. 1106 ft.

GREER COUNTY — T 7n, R 22w, Sec. 1, Good & Dowell, Cliffel 1, nw c, sand 1462-1501 ft, sd 1745 ft. T 7n, R 21w, Sec. 23, H. A. French, Murphy 1, sw nw se, sd 1654 ft.

GARVIN COUNTY—T 2n, R 2w, Sec. 24, Malernee Oil Co., Phillips 1, n c sw, sd 4800 ft.

COAL COUNTY—T 1n, R 8e, Sec. 35, W. E. McCraw O&G, Stiring 1, ne c se, sd 1846 ft.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al, Guinn 1, ne c, show gas 3607-72 ft, sd 1540 ft.

BRYAN COUNTY—T 7s, R 10e, Sec. 8, Bryan Oil Co., Childs 1, ne se sw, sd 660 ft.

WYOMING

CARBON—Midwest Refining Co., U. P. 27, 27-11-81, td 3900 ft. Prairie O&G Co., Bunker Hill 1, 29-27-87, dr 5175 ft. Vermillion Oil Co., sw 16-12n-99w, standing.

CONVERSE—Phillips Pete Corp., completed core drilling operations. John Ackard, 24-33-72,

sd for winter 1490 ft. Otto Olston, 6-32-74, dr depth not given.

CROOK—Northwest Gas & Oil Co., 6-54-60, spudding.

FREMONT—Wiebolt et al, 35-33-99, dd from 1850 ft. Ward O&G Co., 28-34-90, fight bentonite around 2200 ft. Yellowstone Oil Co., 14-38n-94w, dr bel 617 ft.

LINCOLN—Wyo. Prod. Co., 14-24-113, bottomed at 1700 ft.

NATRONA — Midwest's 11, nw 32-34n-77, stand 5340 ft. Midwest's Midway 1, ne 23-35n-79w, to test Muddy, td 6033 ft. Summit Oil Co., 21-33-80, ur, td 1400 ft. Wyo. Imperial Oil Co., se 13-33-79, mvg in.

NIOBRARA—Globe Pete Corp., 2-39-61, dr 248 ft.

SHERIDAN—R. & D. Oil Co., se 21-57-87, sd 950 ft.

SUBLETTE—Cretaceous Oil Co., sw 7-28-113, stand 350 ft.

UINTA—Transwestern Petroleum, Ltd., 6-14-118, fsh tools 3100 ft. Clawson et al, 29-14n-118w, location. Park City O. & G. Co., 16-15n-113w, dr 2800 ft.

WASHAKIE—Ohio Oil Co., lot 14, 19-45-92, dr 7610 ft.

WESTON—LeFaivre Oil Synd., se 29-45n-68w, sd 1314 ft. Gose Synd., 28-47-65, wait for cable, td 4929 ft. Julius Peters et al, Witzell 1, se nw 30-46-64, set 8¼-inch at 1800 ft, now dd. Stockade Anticline Synd., 32-45-60, dr 800 ft.

COLORADO

ADAMS—Hills Dome Lease Dev. Co., se 27-38-64w, sd 3720 ft.

ARAPAHOE—McDeb Drlg. Co.'s Fitzsimmons 1, ne 7-4n-68w, sidetracked tools, co 5835 ft, to dd.

BOULDER—C. T. Ahlstrand's Woodley 1, ne 8-3n-70, dr 192 ft. Julius Williams, 6-1n-71w, dr 150 ft.

EL PASO—Utemore Synd., Cannon 1, ne 10-16s-66w, sd 1126 ft.

GRAND—Oil Mineral Lands, Inc., McElroy 1, sw 14-2n-81w, stand 545 ft.

JEFFERSON—Ruby Hill O&G Co.'s Braden 1, se 24-4s-59w, recem to test gas, td 3934 ft.

LA PLATA—McGarr Pete Co.'s Pinon Mesa 1, ne 34-33n-12, prep to spud. Klem Pete Corp.'s Olbert 1, se 9-26n-12w, stand 3125 ft. J. W. Irwin & Co., Doescher 1, nw 29-33n-12, dr 2840 ft.

LINCOLN—Eastern Colo. Oil Corp.'s State 1, 36-14n-57w, tools lost 3425 ft, sd.

MONTROSE — Uncompahgre O&G Co.'s Title & Trust 2, 27-50n-10w, td 1021 ft.

MORGAN—Ind. Terr. Illum. Oil Co., State 1, ne 16-1n-57w, dr 5640 ft. Independent O&R Co., Schmidt 1, nw 19-6n-60w, rig. Badger Creek O&G Co., sw 2-2n-57w, stand 1165 ft. Colo. Ass. Oil Co.'s Pumphrey 1, se 14-4n-58w, dr 4820 ft. Tulsa-Fort Morgan Oil Co., Smith 1, sw 18-6n-60w, cellar. Prairie O&G Co., Mortier 1, nw 2-5n-60w, bldg derrick.

PARK—So. Park Oil Co.'s Milligan 1, se 13.8s-76w, td 2460 ft, dr hole, oil showing. So. Park O&G Co.'s Easche 1, ne 5-9s-76w, sd 2465 ft, casing trouble.

RIO BLANCO—California Co.'s Raven 1, se 20-2n-102, dr 2535 ft. Magnolia Pete Co.'s Maddock 1, se 9-2s-96w, dr 1502 ft.

ROUTT—Mid-Colo. Pete Corp., Omholt 1, ne 29-4n-87w, dr 530 ft.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4-56, stand 1510 ft.

WELD—Reiter-Foster's Johnson-Juhl 1, 14-6n-61w, cem 5475 ft. Aztec Corp., State 1, se 16-6n-61w, 15½-inch cem 115 ft, lay water line. Retter Oil Co., Smith 1, 14-1n-68w, prep to test show, td 1171 ft. Conoco, Gadbois 1, sw 24-6n-61w, dr 6251 ft. Conoco, Briggs 1, sw 13-6n-61w, 904 bbls at 6664 ft. Greeley Oil Co., Gadbois 1-B, nw 25-6n-61w, dr 1500 ft. Gulf States Oil Corp., Bengston 1, nw 6-4n-63, mvg in.

NEW MEXICO

BERNALILLO — Norris Realty, Pajarito Grant, 22-9n-2e, stand 210 ft.

DE BACA—Saldo Dome Oil Corp., sw 6-4n-20e, stand cem. 3181-89 ft. Landowners Oil Co., State 1, ne 16-1s-27e, dr at 4575 ft, hard lime.

DONA ANA—Viking O. & Dev. Cox 1, nw 26-23-5e, fsh pipe, td 3065 ft.

GUADALUPE — N. M. Prod. & Ref. Co., McMillan 1, 24-5n-16e, dr 2350 ft.

OTERO—Ernest et al's se 20-25s-7e, sd 1157 ft. Pasetero Oil Corp., Evans 1, sw 22-24s-12e, stand 1375 ft, filled back 600 ft with mud.

RIO ARRIBA—Berrenger et al's Hartman 1, ne 8-29n-7w, sd 825 ft. San Juan Pete Co.'s Govt. 1, se 14-30n-7w, sd 250 ft. Governador Oil Co.'s 1, 12-29n-7w, dr 1712 ft.

ROOSEVELT—Peterson et al., Good 1, ne 32-5s-30e, ready to spud.

SAN JUAN—Kutz Canon O&G Co., Day 1, se 20-28n-10w, sd 3635 ft. Rio Grande Dev. Co.'s 2, 9-29-11, dr 1515 ft. Continental Oil Co.'s Rattlesnake 24, 1-29n-19w, dr 5749 ft. San Juan Leaseholds, Bowman 3, ne 30-30-15, sd 2685 ft. Reserve Oil Co., Reserve 3, se 36-22-14, est 25 bbls 814-20 ft. R. C. Oswell et al, nw 34-30n-11w, ur, td 910 ft. Wms. et al, Stallings 1, sw 17-25n-15w, stand 150 ft. Ortega et al, Westwater 2, ne 24-31n-18w, dr 2800 ft. Dorothy Oil Co.'s Terwilliger 2, se 29-30-9, sd 1750 ft.

SANTA FE—Jones, Owsley et al, 5-10n-9e, dr 266 ft.

MONTANA

CASCADE—Buscher & Cassady, Johnson 1, se 19-22-3e, dr 600 ft.

CHOTEAU — Williston-Shelby O&G Co., Flack 1, se 12-28-11e, dr 2845 ft.

GALLATIN—Galatin Valley Oil Co., 1-1n-4e, td 800 ft.

GLACIER—Fulton Pete Corp.'s Blackfeet 1, ne 28-38-12w, dr 2700 ft. Browning Dev. Co.'s Reickhoff 1, ne 3-34-6w, rigged. R. C. Tarrant et al, Haglund 1, sw 13-34-6w, dr bel 350 ft.

GOLDEN VALLEY—Golden Valey Oil Co., 28-6n-22, td 2050 ft.

LIBERTY—Peoples O&G Co., First Nat'l Bank 1, ne 17-36-6e, to res 1285 ft. California Co., for Utopia Oil Co., sell-33-6e, repairs 3244 ft. Northland O&G Corp., Yurman 1, sw 32-33-5e, cem off cave to dr deeper from 3700 ft.

ROSEBUD—Prairie O&G Co., 1-XX, 26-10-39e, dr 2810 ft.

SWEETGRASS—Shoshone Cons., nw 23-2n-15e, run 6-inch, td 5793 ft.

TETON—Andover Oil Co.'s Carlson 1, 5-24-4w, stand 150 ft. California Co.'s Sullivan 1, nw 34-27-7w, shot lost bit 1925 ft but cannot recover. Earl Oil Corp., Gad 1, se 22-22-8w, td 3730 ft. Trans-America Oil Co., State 1, sw 21-24-8w, sd for winter 920 ft.

TOOLE—Liquid Gold Oil Co.'s Elbert 1, ne 25-36-12, to run 5-inch to s.o.w. 2480 ft. Oregon Oil Synd., se 20-36-2e, dr 1300 ft.

YELLOWSTONE—Pan American Oil Synd., 23-2s-24e, dr 1350 ft.

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
SABINE PARISH—		
Pelican Nat. Gas Co., La. Long Leaf 10, 10-7-11	42	2387
Texas Co., DeLatin 1, 3-7-11	*	2625
Coates Pet. Co., Towery 1, 1-7-13..	200	2425

BOSSIER PARISH — Andrews & Davlin's Nattin 1, 15-22-14, 4½ cas 2882 ft, flows small heads oil intermittently, wo, td 2890 ft. Rambaugh et al's Allison 1, 10-19-13, sd 1100 ft. Dr. Hankins et al's Newell 1, 12-19-11, sd 1100 ft. D. L. Perkins et al's Ardis 1, 13-15-11, tcp Nacatosh 944 ft. sd 1004 ft.

CADDO PARISH—United Gas Pub. Serv. Co.'s H. J. Bussa 1, 33-23-16, 12½ cas 375 ft, dr 2472 ft, shale (5500 ft test). Pelican Nat. Gas Co.'s Cooper 1, 29-18-14, ta 3648 ft, red shale and lime. W. P. Wallace, Tr.'s, Cunningham-O'Connor 2, nw nw 15-17-14, elev 236.5 ft, top Nacatosh 976 ft, top Blossom 2036 ft, dry at 2668 ft, plugged back and cemented 6-inch 989 ft, bailed dry in Nacatosh, wo, td 2668 ft.

CALDWELL PARISH—Monroe Pet. Corp.'s Burton 1, 36-12-2e, sd acct titles, td 2986 ft. Carter Bell at al's Taylor 1, 17-14-4e, 12½ cas 110 ft, sd.

CLAIBORNE PARISH—United Gas Pub. Serv. Co.'s Treadwell & Hawks 1, se nw 6-19-5w, 12½ cas 1517 ft, dr 4114 ft shale, (upper Trinity test).

DE SOTO PARISH — Rellitt O&G Co.'s Cannon Hrs. 1, 12-11-16, top chalk 1475 ft, base 1810 ft, 6-inch with pckr set at 1470 ft, bailed dry show gas, sd td 1965 ft. W. H. Weichert's Smith 1, 31-14-15, sd 2350 ft. E. T. Oakes' Johnson 1, 3-13-15, base chalk 2160 ft, coring in Tokio 2854 ft. Walters & Nicholson's Jim Guy 1, 3-11-13, sd 1260 ft. S. S. Meek, Tr.'s Wagner 1, se se 5-12-14, 10-inch 101 ft, top hd chalk 1659 ft, base 2839 ft, cored sand and shale, claim oil show 2864-85 ft, tested sw 2887 ft, tested dry thru ds 2989 ft, arr core ahead.

LA SALLE PARISH—Gulf Ref. Co.'s Tremont Lbr. Co. 1, ne sw 10-9-2e, 15½ cas 105 ft, 12½ cas 940 ft, dr 3509 ft gray sand.

NATCHITOCHES PARISH — Mid-West Prod. Co., Inc.'s, Brown 1, 34-11-10, dk. C. M. Talley et al's Talley 1, 29-11-10, sd 1380 ft. J. W. Cooper et al's Cooper 2-A, 35-11-10, sd 1515 ft.

OUACHITA PARISH—S. C. Wilson et al's W. L. Williams 1, sw se 5-16-1e, dk.

RED RIVER PARISH—Mack Jourdan Co.'s Lockett 1, 33-13-10, sd 2550 ft.

RICHLAND PARISH—National Gas Co.'s Singletary 1, 20-18-7e, sd 2515 ft.

SABINE PARISH—Langbridge Oil Corp.'s Stephens 1, se ne 17-9-11, setting 6⅝ inch cas at 3350 ft after two drill stem tests showed oil at 3360 and 3380 ft, td 3626 ft. J. J. Kean's Belton 1, 31-9-13, 8-inch cas 1590 ft, baled dry no show 1605 ft, bailing showing little oil, td 1700 ft in chalk rock. H. W. Perritt's Bowman-Hicks 5, 2-7-12, 10-inch 100 ft, dr 2200 ft. A. H. Thames' Edwards Est . 1, 8-8-13, sd 1200 ft. R. L. Gay, Tr.'s, Long Bell A-1, nw nw 10-8-13, sd 3853 ft. Coates Pet. Co.'s Bowman-Hicks A-1, sw sw 18-7-13, rig; Bowman-Hicks 1, ne sw 2-7-12, oil show in Wilcox 1670 ft, top marl 2230 ft, top chalk 2300 ft, wosr 2441 ft; Sabine B-1, 1-7-12, 10-inch 100 ft, dr 1900 ft; Sabine 2, se nw 1-7-12, lcn; Towery 1, ne se nw 1-7-13, 10-inch 100 ft, 6-inch at top marl 2132 ft, top chalk 2150 ft, flowing 200 bbls oil day thru ¼-inch choke, 50 lbs. back pressure, td 2425 ft, chalk rock; Stille 1, nw se 35-8-13, lcn; Hill 1, se se 35-8-13, lun; Hale 2, nw sw ne 1-7-13, dk. Dengail Oil Co.'s Nulton 3, sw sw ne 1-7-13, lcn. Ohio Oil Co.'s Bowman-Hicks 9, 35-8-12, lcn; Bowman-Hicks 10, 35-8-12, lcn; Bowman-Hicks 11, 2-7-12, lcn. Diffie & Barrett's Lites 1, 34-8-11, 10-inch 105 ft, sd. Hudson & Bird's Walden 1, sw ne 26-8-11, 10-inch 100 ft, sd for water 1800 ft. Hawkins et al's Moran 1, se ne 1-7-11, wosr 2620 ft. Hawkins & Antoon's Newton 1, 1-7-11, wosr 2610 ft. Texas Co.'s DeLatin 1, sw se se 3-7-11, 6-inch 2343 ft, dry abn, td 2625 ft hd lime. L. K. McGuffin's Byrd 1, 1-7-11, sd 400 ft. Zeke Lohman's McCormick 1, ne sw 2-7-11, sd 1606 ft. Ben Merritt, Tr.'s, Byrd 2, 1-7-11, 10-inch 88 ft, sd. Roy Baker's Sabine 1, 11-7-12, wosr 2548 ft. Gautier et al's Meshell 1, 30-8-12, wosr 2530 ft. Lanier & Dyer's Barthold 1, 35-8-12, bailed dry, bailed later showed oil, wosr, td 2521 ft. Loring Oil Co.'s Bowman-Hicks 18, sw nw 15-7-12, 15½ cas 100 ft, dr 3120 ft; Bowman-Hicks 19, sw ne 16-7-12, 15½ cas 101 ft, dr 2900 ft. Pelican Nat. Gas Co.'s La. Long Leaf 10, nw ne 10-7-11,flowing 42 bbls oil day thru 2-inch tub, td 2387 ft, 6⅝ cas 2335 ft. G. M. LeGrand's Peterson 1, sw ne 34-7-13, 10-inch 40 ft, dr 500 ft. A. F. Tarver's Cutrer 1, 14-7-11, wosr, td 2550 ft. Crescent Drilling Co.'s Byrd 1, 12-7-11, 10-inch 100 ft, dr 200 ft. Lyons & Neely's Byrd 3, 1-7-11, sp 10-inch 100 ft, dr 500 ft. Eddie Self's Jacobs 2, sw se 1-7-11, 10-inch 100 ft, dr 500 ft.

TENSAS PARISH—A. R. Willis' Curry 1, 39-11-12e, sd 3545 ft. L. A. Duvall et al's Martin Jacoby 1, ne ne 1-14-10e, 10-inch 200 ft, dr 2500 ft. Stovall Drilling Co.'s Miller 1, ne sw 18-10-10e, lcn.

UNION PARISH—Don Brooks, Tr.'s, Douglas 1, ne sw 9-22-2w, 12-inch 170 ft, top chalk 2317 ft, top red beds 3079 ft, sd 3509 ft gumbo.

VERNON PARISH — Exchange Pet. Co.'s White Grandin 1, ne sw 29-3n-7w, 12½ cas 210 ft ,dr 1613 ft, sandy shale.

ARKANSAS

CHICOT COUNTY—W. R. Smith's Lytle 1, 31-18-3, ta 2925 ft.

CLAY COUNTY—S. C. Jeffus, Tr.'s Underwood 1, 4-20-8e, sd 1252 ft.

CLEBURNE COUNTY—Donnell et al's Fee 1, 33-11-9, sd aftr testing sw 3515 ft.

CLEVELAND COUNTY — Crum & Stillwell's Bell 1, 10-10s-12w, rigged up and sd.

COLUMBIA COUNTY—Kendall Oil Co.'s Fullenwider & Kitchen 1, ne ne 13-17-22, 8⅝ cas 800 ft sd 804 ft.

CRAWFORD COUNTY — Ozark Nat. Gas Co.'s Hammonds 1, se se 29-10-29, dr 625 ft shale.

DALLAS COUNTY—Zepp O&G Co.'s W. E. Hillman 2, se ne 20-10-13, 10-in 135 ft, cap

rock 2442 ft coring 2448 ft sand. Jno. James, Tr.'s Fordyce Lbr. Co. 1, 11-9s-15w, sd 2520 ft. E. C. Brewer, Tr.'s Hillman 1, 20-10-13, sd 2869 ft white sand.

HOT SPRINGS COUNTY—Starr Oil Co.'s Cunningham 1, 11-5-16, 12½ cas 62 ft sd 1262 ft shale and bldrs.

JOHNSON COUNTY—Blackwell O&G Co.'s Wyver 1, 21-8-23, ta 5600 ft.

LINCOLN COUNTY — L. B. Cook, Tr.'s McGehee Pltg. Co. 1, 5-8s-7w, sd while fsh 800 ft 4-in drill stem td 2800 ft.

LITTLE RIVER COUNTY—Fay Roberts Oil Co.'s Russell 1, 25-12-19, lcn.

LOGAN COUNTY—M. W. Greesom's Parks 1, 21-8-24, sd 1309 ft. J. H. Flowers' White 1, 13-5-26, sd 3610 ft.

MILLER COUNTY—W. E. Noel et al's Dickson 1, 11-20-27, sd 1955 ft shale and gumbo. Fitzwater et al's E. L. Beck 1, sw se 33-15-26, old well rig up to deepen 10-in 85 ft td 85 ft.

OUACHITA COUNTY — W. H. Copenhaver et al's Berg 1, se se 13-15-17, 10-in 42 ft dr 532 ft gumbo.

PIKE COUNTY—Henderson et al's Tilyou 1, 26-8-24 ta 2920 ft. Kentucky-Ark. O&G Co. Inc.'s East 1, 13-9-23, 10-in 288 ft did not set 8-in at 338 ft to shut off artesian flow, hole full fresh water td 709 ft.

PRAIRIE COUNTY — Powell Creek O&G Co.'s Kloss 1 ne sw 3-4n-6w, rig.

SCOTT COUNTY — Heavener O&G Co.'s Reser 1, 36-4-26 sd 1536 ft. Waldron O&G Co.'s J. G. White 1, 17-3n-29w, sd 1860 ft (sec. hole).

SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7-29w, sd 1536 ft.

SEVIER COUNTY — Tri-State O&G Co.'s Bank of DeQueen 1, 34-8s-32w rigged up and sd.

UNION COUNTY — Southern Prod Co.'s Wingfield 1, 16-19-15, sd 2608 ft. Lion O. R. Co. et al's Guy P. Hayes A-9, ne ne 4-16-15, elev. 96 ft dr hd lime 5731 ft (6000 ft test). Wilson & Chapman's Handley 1, 3-18-13, ta 3570 ft. Doty Norman A-1, 3-18-13, lcn. Doty Norman B-1, 3-18-13, lcn. Henry Norman 1, 3-18-13, tested 2400 ft oil good gas show 3560-83 ft 65# cas 3560 ft arr dr plug 23 ft sand td 3583 ft. Marine Oil Co.'s W. B. Thompson D-1, 3-18-13, rigged up and sd. Winn Est. A-2, 11-18-13, ta 3586 ft. Drillers Oil & Dev. Co.'s Pickering 1, 1-17-16, 10-in 42 ft dr 1110 ft sand. Joe Medisette et al's Webb 1, nw se 6-18-13, lcn.

WASHINGTON COUNTY — Lincoln Lease Holding Synd.'s Townsite 1, 3-15-32, ta 1500 ft. C. H. Willoughby's Jones 1, 34-16-30 sd 2150 ft. O'Hara & Shetterley's Boyd 1, 2-16-32, ta 650 ft. Delbert Graves' Cunningham 1, 14-15-32, sd 602 ft gray sand.

YELL COUNTY — T. Luckett's Balcon 1, 36-7-12, sd 5710 ft.

MISSISSIPPI

ADAMS COUNTY (Natchez Dist.) — Ark. La. P. L. Co.'s Brandon Halls Farms Inc. 1, 32-8n-1w, elev 282 ft top Vicksburg 1550 ft top Sparta 2920 ft dr 3206 ft sandy shale.

CLARKE COUNTY (Quitman Dist.)—Gulf Ref. Co.'s Long Bell Lbr. Co. A-1, sw sw 10-2n-16e, elev. 380.3 ft 15½ cas 105 ft 10-in 956 ft top black shale 2290 ft top Midway chalk 2633 ft dr chalk 3325 ft.

CHICKASAW COUNTY — Hightower & Golson's Fleming 1, 20-13s-3e, sd while driv pipe td 1640 ft.

HUMPHREYS COUNTY—Danciger O&R Co.'s Bellgrade Lbr. Co. 1, nw nw 29-14n-4w, 10-in 659 ft dr 2006 ft rock.

JASPER COUNTY, (Bay Springs Dist.)—Bay Springs Pet. Inc.'s J. H. Keys 1, nw ne 21-2n-10e, sd 2360 ft. Wilcox.

MONROE COUNTY, (Amory Dist.) — Amory Dev. Co.'s Bourland 1, 2-15-19, ta in brown sand 3007 ft. P. J. McAlpine's Cowart 1, 2-12s-19w, 5 3/16 cas 3420 ft fsh for bailer td 3485 ft. Associated Royalties School Board 1, sw se 16-15-17, ta 60 ft.

NEWTON COUNTY, (Newton Dist.) — Dalton Dev. Co.'s Majure 1, se se 25-6n-11e, rigged up and sd.

NOXUBEE COUNTY, (Macon Dist.)—Thompson O&G Synd's Donahue 1, se ne 25-16n-17e, elev 280 ft 12½ cas 20 ft cemt 8¼ cas 1605 ft td 1715 ft sandstone. Ames 1, nw nw 24-16-18e, dk pat.

RANKIN COUNTY, (Jackson Dist.)—Gulf Ref. Co.'s Hanna A-1, nw se 23-5-1e, 15½ cas 82 ft, 12½ cas 840 ft, top black shale 2471 ft, top chalk 2562 ft fsh bit lost while running milling tool on fish bit at 1440 ft drill pipe stuck, td 2815 ft. Atkisson & Dyer's Valentour 1, 18-5-2e, 12½ cas 60 ft sd 405 ft. Majestic O&G Co.'s Elton Lbr. Co. 1, 10-4n-3e, dk. United Gas Pub. Serv. Co.'s McLaurin A-1, ne sw 8-5-2e, elev 280 ft, 12½ cas 105 ft, 9-in 854 tf, top Wilcox 1219 ft, dr shale and bldrs (Wilcox) 2070 ft. Culley et al's Owen 1, 2-8n-9e, dk.

WARREN COUNTY, (Vicksburg Dist.)—Eagle Lake O&G Co.'s Kiger 1, sw ne 9-18-2e, sd 2607 ft. United Gas Pub. Serv. Co.'s Tchula Store 1, sw se 33-15n-3e, elev 83.8 ft, 15½ cas 184 ft, cemtd 10-in uas 855 ft, top Claiborne 725 ft.

WEBSTER COUNTY — P. J. McAlpine's Henley 1, se nw 15-21-11e, cored gravel sd 1800 ft.

WINSTON COUNTY, (Louisville Dist.)—Miss. Drilling Co.'s Scarbrough 1, nw nw 15-13-14e, sd repr rig 3990 ft.

ALABAMA

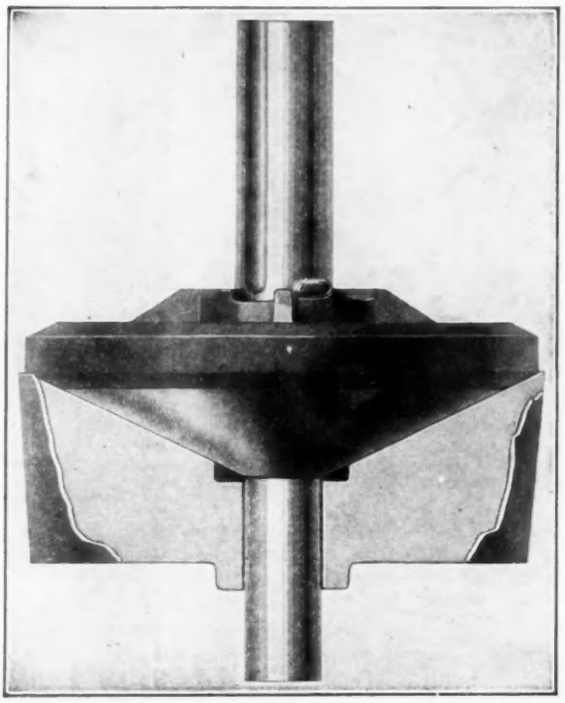
MADISON COUNTY — Tennessee Valley O&G Co.'s Fee 4, 1-4s-2e, no report.

SUMTER COUNTY, (Livingston Dist.)—Forked Lightning O&G Co.'s Nixon 1, 30-20-2w, dk.

WASHINGTON COUNTY—Hobson et al's Wilson 1, 27-7-1w, arr change to rotary from cable tools, td 925 ft. Wilcox. Hobson 1, 9-8-2w, ta 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 25-3-2w, ta 700 ft.

TENNESSEE

DECATUR COUNTY—Chester County O&G Co.'s Montgomery 1, dr 2511 ft (2500 ft contract depth).



MacClatchie Mud Pump Valves are stocked by all Mid-Continent Continental Supply Stores.

The LARGEST SELLING VALVE IN THE WORLD IS THE MacCLATCHIE!

No matter what mud pump you buy you may be sure that there is a MacClatchie Valve to fit it. Our 67 types of valves are all built according to the time-proven design originated by MacClatchie and are backed by a record of economy and service that is without equal. Order a set today.

MacClatchie Valves are made up of only the finest special alloys and carefully processed rubber. Both the seat and valve proper are heat-treated to provide especially hard wearing surfaces. The seat is machine-ground to insure perfect fit. The valve is of solid, one-piece construction, with nothing to jar loose.

Being originators of a valve constructed with tapered valve body and tapered seat the MacClatchie Company has been granted by the U. S. government two patents, Nos. 1,785,259 and 1,785,278.

MacCLATCHIE MANUFACTURING CO.

COMPTON Branches in Houston, Texas; Ventura and Bakersfield, California CALIFORNIA

▼ PERMITS ▼

(Continued from page 72)

RUSK COUNTY—Snowden & McSweeney Co., Fort Worth, R. H. Laird, 133, 6, Chisum & Ruddle sur, 330 ft from s and w lines. R. M. V. Oil Co., Henderson, J. A. Birdwell, 149, 4, M. J. Pru sur, 1400 ft from e and 330 ft from s line. Friedman Oil Corp., Tyler, Holland, 20, 1, W. R. Cook sur, 238 ft from sw and 330 ft from e line. Darby Pet. Co., Tulsa, Okla., C. O. Christian, 97, 2, M. McCabe sur, 330 ft from s and w lines. Lucey Pet. Co., Longview, B. F. Maxwell, 94, 4, E. Collard sur, 400 ft from s and 330 ft from e line. H. L. Blackstock, Kilgore, W. P. Brightwell, 16, 1, T. E. Winn sur, 150 ft from n and e lines; 2, 150 ft from s and e lines; 3, 471 ft n of No. 2. Adams & Rowe, Inc., Shreveport, La., J. E. Arnold, 20, 2, M. J. Pru sur, 330 ft from n and 236 ft from w line. L. P. King, Corsicana, W. P. Keeling, ½, 1, Cordova sur, 150 ft from n and 42 ft from e line. Wheelock & Collins, Corsicana, D. Wells, 220, 3, H. Hobson sur, 1650 ft from w and 330 ft from s line. Stroube & Stroube, Corsicana, V. Barton, 5½, 1, M. McCabe sur, 118 ft from n and 474 ft from w line. E. W. & F. D. Jones, Dallas, W. P. Moore, 33, 2, M. J. Pru sur, 240 ft from n and 350 ft from e line. Devonian Oil Co., Tyler, J. B. Milstead, 83, 5, E. Collard sur, 330 ft from n and 250 ft from w line. Bussa Co., Vivian, La., W. P. Brett, 10, 1, F. Cordova sur, 150 ft from w and 141 ft from n line; 2, 150 ft from e and 141 ft from n line. Lion Oil & Ref. Co., El Dorado, Ark., W. P. Brett, 26, 2, F. Cordova sur, 150 ft from n and w lines. East Texas Ref. Co., Dallas, J. Bell, 29, S. P. Hollingsworth sur, 250 ft from s and w lines. M. A. Corbin, 324, W. Ferguson, Tyler. J. Wooley, 21, 1, T. J. Martin sur, 330 ft from s and w lines. R. A. Motley, 20, 1, F. Cordova sur, 330 ft from n and 450 ft from e line. Mid-Kansas Oil & Gas Co., Shreveport, La., M. C. DeGuerin, 158, 2, J. B. Cadena sur, 335 ft from s and 491 ft from w line. Arkansas Fuel Oil Co., Shreveport, La., D. Ferguson, 74, 3, M. J. Pru sur, 330 ft from n and e lines. Arkansas Fuel Oil Co., Shreveport, La., J. W. Wheelis, 81, 3, R. H. Penny sur, 330 ft from n and w lines. E. M. Bealle, 29, 3, F. Cordova sur, 330 ft from n and e lines. Texas Co., Shreveport, La., First State Bk., 160, 3, J. C. Smith sur, 2222 ft from n and 330 ft from w line. W. T. Chappell, 80, 1, W. A. Elliott sur, 330 ft from s and w lines. A. S. Jarvis, 81, 1, I. Moore sur, 375 ft from n and 330 ft from e line. H. L. Hunt, Tyler, G. Johnson, 31, 1, H. B. Dance sur, 330 ft from s and e lines. C. Young, 126, 6, M. J. Pru sur, 330 ft from w and 910 ft from s line. W. P. Moore, 82, 3, M. J. Pru sur, 330 ft from s and w lines. J. Lee, 61, 2, J. Crouch sur, 330 ft from n and w lines. R. W. Fair, A, 136, 7, McAnulty-Vargas sur, 3000 ft from s and 525 ft from e line. N. Turner, 24, 8, Geo. Berry sur, 330 ft from n and e lines. C. L. McMahon, Tulsa, Okla., S. S. Laird, 45, 2, R. W. Smith sur, 600 ft from e and 161 ft from s line. Tidal Oil Co., Fort Worth, N. Bean, 58, 6, J. S. Caruthers sur, 927 ft from s and 250 ft from e line. J. R. Irion, 73, 3, M. J. Pru sur, 330 ft from s and w lines. J. Flanagan, 40, 1, M. J. Pru sur, 330 ft from n and w lines. N. Bean, 58, 5, J. S. Caruthers sur, 250 ft from e and 1515 ft from s line. Humble Oil & Ref. Co., Houston, S. A. Plowman, 228, A17, F. Cordova sur ,1200 ft from s and 1750 ft from e line. H. Sexton, 168, B2, M. McCabe sur, 330 ft from n and w lines. M. E. Minor, 120, 3, Wm. Killen sur, 1650 ft from e and 330 ft from s line. W. A. Mullikin, 166, 5, T. J. Martin sur, 330 ft s of center of n line. G. F. Wooster, 50, 1, W. H. Bears sur, 990 ft from w and 389 ft from s line. A. D. Blackwell, 82, 10, F. Cordova sur, 737 ft s of No. 7. J. J. Pitner, 12, 1, G. J. Martin sur, center. J. N. Peterson, 101, 14, W. P. Chisum sur, 660 ft from ne and 330 ft from e line. M. Kangera, 125, B3, J. B. Cadena sur, 330 ft from n and 473 ft from w line. A. R. Wooley, 13, 3, F. Cordova sur, 330 ft from n and e lines. Texas Co., Shreveport, La., First State Bk., 160, 2, J. C. Smith sur, 1562 ft from n and 330 ft from w line. J. W. Turner, 70, 2, J. M. Scott sur, 330 ft from s and w lines.

SMITH COUNTY—Magnolia Pet. Co., Dallas, J. R. Wright, 78, 10, J. Vargas sur, 990 ft from w and 330 ft from s line. Dan Russeck, Tyler, S. S. Cook, 10, 1, J. Vargas sur, 208 ft from e and 150 ft from s line. J. F. Graham, Wichita, Kans., T. O. Wright, 8, 1, J. Vargas sur, 330 ft from w and 150 ft from n line. Texas Co., Shreveport, La., J. W. Wilson, 134, 5, D. Collins sur, 710 ft s of No. 3. A. S. Jarvis, 81, 2, M. S. Coy sur, 330 ft from n and cw lines.

SHACKLEFORD COUNTY—G. A. White, et al, Cisco, M. Crow, 56, 1, S 17, L. A. L. sur, 200 ft from s and 750 ft from e line.

UPSHUR COUNTY — Humble Oil & Ref. Co., Houston, L. T. Mackey, 9, 95, 1, S. Harrell sur, 330 ft from s and w lines. E. O'Byrne, 150, A2, J. M. Pineda sur, 330 ft from e and 1560 ft from s line. W. W. Holland, 245, 5, T. Allen sur, 450 ft from n and e lines. J. D. Smith, 72, 2, E. A. J. Evans sur, 450 ft from s and e lines. Magnolia Pet. Co., Dallas, T. R. A. Adkins, 100, 3, G. W. Hooper sur, 990 ft from n and 330 ft from w line. Rancho Oil Co., Fort Worth, H. Moyers, 50, 2, A. T. McGee sur, 330 ft from n and w lines. Kochtitzky & Johnson, Inc., Little Rock, Ark., O. Victory, 44, 3, J. M. Pineda sur, center; 2, 390 ft from n and 330 ft from e line. Eastland Oil Co., Fort Worth, O. M. Victory, 25, 1, E. A. J. Evans sur, 330 ft from s and 397 ft from w line. Texas Co., Shreveport, La., H. L. Phillips, 18, 2, H. R. Hokit sur, 330 ft from n and w lines. California Pet. Co., Shreveport, La., J. N. Taylor, 37, 1, M. Mann sur, 330 ft from w and 1515 ft from s line. W. F. Glenn, 28, 1, G. W. Hooper sur, 360 ft from w and 330 ft from s line. I. Walker, 120, 4, S. Harrell sur, 330 ft from s and e lines; 3, 330 ft from s and e lines.

UPTON COUNTY — Gulf Prod. Co., Fort Worth, J. T. McElroy, 640, 95, S 195, B F, CCSD&RGNG sur, 330 ft from w and 990 ft from s line sec.

VAN ZANDT COUNTY—Pure Oil Co., Fort Worth, W. A. York, 50, 4, J. Walling sur, 660 ft from n and 890 ft from we line.

WHARTON COUNTY—Wallace Oil Corp., Corpus Christi, J. N. Lee, 640, 1, S 18, GH&H sur, ne cor of sec.

WARD COUNTY—Prairie Oil & Gas Co., Ranger, H, Archenhold 1, S 23, B 5, H&TC sur, 322 ft from n and w lines.

WILBARGER COUNTY—Davis Oil Corp., Vernon, J. W. McCray sur, 40, 1, S 64, B 14, H&TC sur, 150 ft from n and e line ne¼ of nw¼.

WEBB COUNTY — E. A. Sterling & Co., Inc., Laredo, A. C. Garza, 20, 1, S 336 sur, 150 ft from n and w of blk 30, R. V. Benavides, 40, 70, S 19, B 8, M. Arispe sur, 660 ft from nw and 360 ft from ne line.

WICHITA COUNTY—Geo. Proctor, Wichita Falls, J. B. Spradling, 94, 1, B 306, Wag. Col. sur, 450 ft from w and 150 ft from s line.

ZAPATA COUNTY—F. H. Etheridge, San Antonio, J. Bustamente, 80, 1, Fansler-Comitas sur No. 35, 150 ft from nw and 640 ft from ne line. Ballard & Mercer, Laredo, F. Flores, 160, 1, S, 37, B 27 sur, 500 ft from e and 580 ft from s line. Corrected location. E. K. Bateman, Laredo, M. Garza, 40, 1, B 29, Zorro sur, 200 ft from n and 660 ft from e line. M. D. Slater, Laredo, Fee, 40, 1, B 25, Borrego sur, 1200 ft from w and 1000 ft from s line.

Pittsburgh.—(Special.)—Crude oil, just as it comes from the well, is selling in Pennsylvania for $33.60 per barrel. It is being bought by housewives, and, after being cut with an equal amount of gasoline, is used as polish for the highest-grade furniture and the costliest of pianos.

Ten cents per pint is the retail selling price, and a pint will last a month, according to ladies using it. It can be bought from drug stores "almost anywhere," and is not by any means new to home use in Pennsylvania and elsewhere.

"I have used it for years," said one housewife. "I use it on my piano, which cost $1350, and I consider it much superior to many of the door-to-door polishes that are offered almost daily."

If there are 25,000,000 homes in the United States, and all of these homes could be sold on using one gallon of crude oil per year, the neat sum of $20,000,000.00 would be realized, to say nothing of an additional $2,000,000.00 for gasoline used as a cutting element—a sum greater than that paid by the United States for the site and rights to build the Panama Canal!

Gott Water Cans & Coolers
When you have a GOTT Water Cooler handy, you will always be assured of a fresh supply of pure drinking water kept delightfully cool. Order one from your supply store . . . now!
GOTT Water Cans 1½ gal; 5 gal; 5 gal; and 10 gal.
GOTT Water Coolers 5 gal; 5 gal; 8 gal; 10 gal; and 20 gal.
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H. P. GOTT MFG. CO. • Winfield, Kansas
KEEP PURE DRINKING WATER ALWAYS HANDY

Letters of Paul Peebles, P. S. G.

▼ ▼ ▼

My dear Cleopatra:

Well Cleo honey I am back here in Houston and aint hardly got settled before I take this opportunity of writing you because I know you will be wondering where I have been for the last two years, and a hole lot of my friends in the oil business also wants to know the same thing but they also have been wondering where they was and is at their own selves so I wont ask them and they need not to ask me or I will tell them I have been around the corner where prosperity is supposed to be and maybe they will know then where I have been.

But anyway I have been kinder keeping my eye on the oil business all the time and I have seen a lot of times when I could have give some good advise on what ought to be done, but after I had told Dad Joiner and Ed Bateman where to drill I thought I had said enough for a long time, so I retired from the geology business because now it looks like maybe we dont need no more geology for a spell and not a whole lot of engineering until after they get through in East Texas.

Now that I have been out for so long and want to get back in the oil business again I do not know whether it would be better for me to head back through the legislature or the army. But anyway since it aint but two men running the oil business any more it ought not to be much trouble to make the rounds asking for a job. I aint never had no dealings with Bill Murray up in Oklahoma but of course I know Ross Sterling from the old days back in Humble and I guess I will see him first and ask him about a job, especially since the state of Texas is going into the oil producing business in the Sabine river. It seems like the legislature has left three ways to handle that situation and the only good thing about it is that they have to wait 90 days before they decide what to do. And in the meantime maybe the soldiers will keep up the price of oil so that when they do start the people in the state can get a dividend instead of paying any taxes. But as I remember that Sabine river it aint much to write home about at no place and it kinder peters out before it gets to the oil country. And anyway the state did not get rich out of drilling in Cow bayou at Orange and they did not have to have no special session of the legislature about it either.

Honey it is a funny thing when the government starts to fixing things in the oil fields. Now in Oklahoma Alfalfa Bill is running things with the army and some shade of nepotism and them what dont like what he is doing about it says that he is making it hard

Paul Peebles
"Hisself"

on the big companies, especially Harry Sinclair, and they is talking about running him for president because he is the great champeen of the poor peepul. And down here in Texas they is doing the same thing only a little different, and they say that Ross Sterling is doing it for the big companies and is grinding down the little producers. If you can figure that out you are smarter than I am and that aint possible. The difference seems to be that all of Ross' kinfolks has good private jobs already and he dont get them to handle the oil situation for him and besides that he has been trying to ride herd on both the legislature and the railroad commission and there aint one mind among them. So the way the oil situation sits it is a two ring circus with Bill Murray in one ring and Ross Sterling in the other and we just have to feel sorry for Hooey Long in Louisiana and Woodring in Kansas because they have got their ring master suits on and standing on the side lines wishing they had some flush fields and could get out their soldiers and put on a show of their own. And in the meantime old General Depression seems to be strut-

MANY OPERATORS ADOPT NEW METHOD OF SETTING SCREEN ON OIL STRING

R-S-M Full-Hole Cementer permits setting screen on final casing string, effecting many savings.

The R-S-M Full-Hole Cementer, a device which permits setting screen on the oil string, and cementing the oil string all in one operation, is rapidly being adopted by many operators in the Mid-Continent. Screen set is the same size as the oil string. To date, more than twelve oil companies have adopted it. Wells ranging in depth to 7,590 feet and showing pressures up to 2,300 pounds have been very successfully completed by this new method.

The R-S-M Full-Hole Cementer is a short simple device which makes up on the oil string between casing and screen. When screen is bottomed, cement is pumped down casing. The Cementer forces cement up around outside of casing, but prevents it from reaching inside or outside of screen. When cement has set, plugs are drilled up with special bit run on tubing, and well is ready to bring in through tubing, which is left in the hole. The method is absolutely safe, simple and sure. It saves all time, money and effort involved in setting screen and liner through last string of casing.

The R-S-M Full-Hole Cementer is sold exclusively by the Houston Oil Field Material Company. Full and complete information concerning this new method of setting screen and cementing casing in a single operation will be cheerfully supplied on request, without obligation. Write, wire or 'phone Houston Oil Field Material Company, Houston, Texas.

HOUSTON OIL FIELD MATERIAL CO.
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HEYDRICK'S NEW MAP
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Accurate and up-to-date.
Scale, 2,000 feet 1 inch.
Size, 3½ x 8 feet.
Cloth, $17.50 — Paper, $10.00
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Successors to
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ting even bigger than General Jake Wolters.

And another thing that has happened in the oil business since I quit keeping it straight with my sound advice is that they have let in a new word that we did not hear so much when times was better, and that is potential. I do not know hunny if you know what potential is or not and a whole lot of people aint real sure about it but it is potent in these days. It is a twin to proration and both of them took prominence in the oil business at the same time. In simple language that you can understand it is what might happen even if it never comes to pass. The way you figure it you open up a well a few minutes and blow the oil out of the flow line and then figure that if the well was left open it would keep on flowing like that and make a lot of oil which reminds me that I read once in some book that would not be popular in Tennessee that the potential of one pair of elephants in 400 years would be more elephants than the whole bulk of the earth, including the East Texas oil field. And it is a well known fact that elephants produces slower than any pumping well in Pennsylvania or Arkansas, and them two which come out of the ark has been busy a long time and they aint near come up to their potential. I guess you know what I mean or I will explain that a lot of times the dog stops before he catches the rabbit. But anyway if you can understand potential you have explained to you why the fashion in the oil business now is for the price to follow production down and the old law of supply and demand has quit working even under martial law.

Well honey I guess you see what a mess things gotten into because I went off and quit telling them how to run the oil business and I will not promise for sure that I will be able to fix up things again because some people will be bull headed about taking my advice. But I am back again to do consulting work and my admirers can get in touch with me through THE OIL WEEKLY here in Houston and I will be glad to have them present their problems to me and I will not charge them much for my advice on account of the price of oil being so low that advice about it aint worth much any more.

I will let you know if I decide to run for the legislature or join the army and I will write to you again real soon if I cant run down to see you or if I am not too busy.

Your loving Paul.

P. S. Did you see in the paper about that fellow which is going to take the carbon out of oil in the field so that it will not clog up the pipe line? That is a slick scheme I never thought about. You see oil is 80 per cent carbon and the rest is hydrogen which aint only half of air. That ought to go through a pipe line pretty slick. PP

Jackson, Miss.—It is unofficially reported here that Gulf Refining Company has re-assigned to Mississippi Gulf Oil and Gas Company of Laurel, Mississippi, its entire interest in a block of several thousand acres in Covington County, South Central Mississippi, which Gulf Refining Company took over for development several months ago from the other company and drilled a wildcat test to 4518 feet from 3000 feet, where it had been shut down by the Laurel concern.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of The Oil Weekly, published weekly at Houston, Texas, for October 1, 1931.

State of Texas, County of Harris: ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared A. L. Burns, who, having been duly sworn according to law, deposes and says that he is the Business Manager of The Oil Weekly and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher: R. L. Dudley, 3238 Huntington Drive, Houston, Texas.

Editor: S. W. Robinson, 5002 Scotland, Houston, Texas.

Managing Editor: J. Kent Ridley, 4401 Greely, Houston, Texas.

Business Manager: A. L. Burns, 4311 San Jacinto, Houston, Texas.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

The Gulf Publishing Company, Houston, Texas: James Anderson, Houston, Texas; R. L. Blaffer, Houston, Texas; Mrs. Sarah Campbell Blaffer, Houston, Texas; A. L. Burns, Houston, Texas; J. F. Carter, Jr., Tulsa, Oklahoma; Dr. N. L. Dudley, Goose Creek, Texas; R. L. Dudley, Houston, Texas; W. S. Farish, Houston, Texas; Wm. V. Gross, Houston, Texas; Howard R. Hughes, Houston, Texas; Chas. H. Lane, Houston, Texas; Wallace E. Pratt, Houston, Texas; J. Kent Ridley, Houston, Texas; S. W. Robinson, Houston, Texas; R. S. Sterling, Houston, Texas; R. P. Swinsky, New York, N. Y.; O. R. Waller, Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

A. L. BURNS,
Business Manager.

Sworn to and subscribed before me this 11th day of September, 1931.

(Seal) MAUDE DIXON.

(My commission expires June 1st, 1933.)

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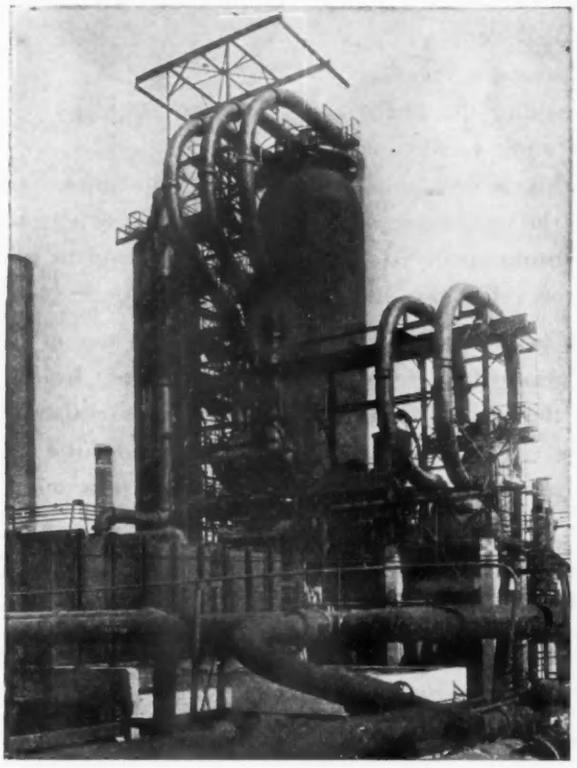
GULF

Modern Methods Make Modern Gulf Products



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Gasoline · Lubricating Oils

Naphtha · Gas · Oils

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Cylinder · Engine · Cordage

GULF REFINING COMPANY

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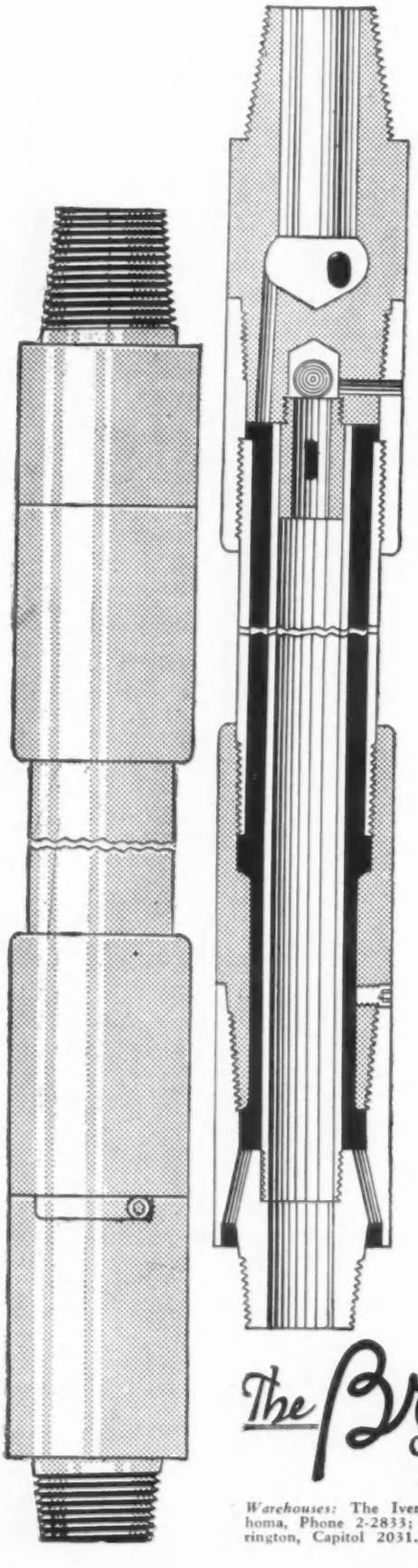
Brewster Automatic Core Drill

Type "M" Bit Body



This automatic feature consists of a means of washing the inner barrel clean. The water is allowed to pass through this barrel until all foreign substances are washed out; when the operation of coring begins the ports in the inner barrel are automatically closed, allowing the fluid to pass around the inner barrel to the bit.

Another feature is the position of the valve in the top of the barrel, which is arranged to prevent the pressure from holding the ball down, so that in soft sand coring there is no resistance on the inner barrel, thus allowing soft sand cores to enter the barrel. A vent is provided to allow fluid and air to pass out of the inner barrel.

These features are very desirable and fill a long felt want where soft sand and other coring is necessary.

In either soft or hard formation a full recovery is assured. Made in all sizes and any length.

This barrel is equipped with split liners the same as Type "C" and Type "M" barrels.

Type "M" Cutter Head

The Brewster COMPANY~INC.
Shreveport,Louisiana

Warehouses: The Iverson Specialty Co., Oklahoma City, Oklahoma, Phone 2-2833; The Brewster Houston Store, 2000 Harrington, Capitol 2031.

New Equipment for the Field

MACHINERY • TOOLS CATALOGS • BOOKS

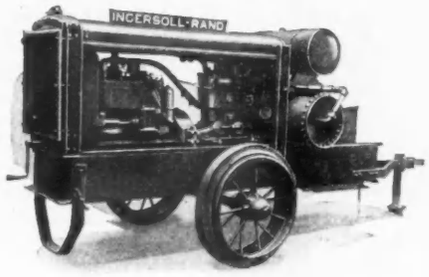
▼ ▼ ▼

Portable Air Compressor

INGERSOLL-RAND COMPANY

Ingersoll-Rand Company, 11 Broadway, New York City, is introducing the "Speed Trailer," a portable air compressor designed for high-speed towing.

It consists of a standard 5½ by 5-inch gasoline-engine-driven compressor mounted on two rubber-tired steel wheels. Because of the low center of gravity, it can be towed behind a truck on a good roadway at 30 to 35 miles per hour. When detached, it can be moved about by one man.



New "IR" Compressor

The steel frame forms a tool box six by two feet, providing ample room to carry all the tools and accessories ordinarily used with this size of compressor. This leaves the truck or other towing vehicle free to serve its usual purpose.

The complete "Speed Trailer" is 13 feet, 10 inches long; six feet wide; and five feet, nine inches high. It has a piston displacement of 120 cubic feet per minute and is designed for a working pressure of 100 pounds per square inch. Removable steel side doors permit enclosing and locking the unit when it is not in use.

Operating features include an "airsealed" compressor unloader, "airsealed" engine speed controller, aftercooler, and Type "K" plate valves.

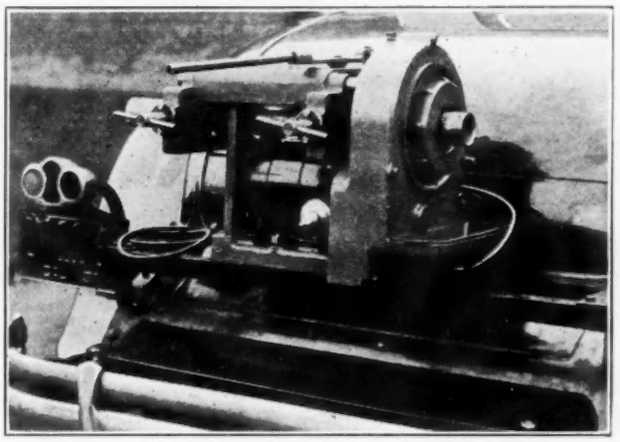
Complete information may be obtained from the company, 11 Broadway, New York City.

Portable Threading Machine

AXELSON MANUFACTURING COMPANY, LTD.

Axelson Manufacturing Company, Ltd., Los Angeles, has placed on the market its new Axelson portable threader, which has recently been perfected after months of careful study.

This portable threader is a compact, rigid, sturdy unit capable of threading one-half-inch to two-inch pipe, while a slight substitution in the form of bolt dies enables a varied range of work to be accomplished. It is designed specifically for small shop or field work, and can easily be mounted on the rear of the average automobile without altering the automobile. For example, a suitable foundation for the threader is the trunk rack. The accompanying illustration shows one of the machines mounted on the



Axelson Threading Machine

rear of Herbert Crapster's automobile, prior to his leaving Los Angeles for a tour of the nation, demonstrating the machine to jobbers and users.

Electric power is used, and attachment to a light socket is the only convenience necessary for operation. The threader can be used on any 110 volt circuit when powered by a universal reversible motor especially developed for this unit by the General Electric laboratory. The motor is one-half horsepower. Attachments are available through Axelson Manufacturing Company, Ltd. with the threader.

Further details may be had by writing the company at P. O. Box 710, Vernon Station, Los Angeles.

Extinguisher Casing Head

HOUSTON FOUNDRY & MACHINE COMPANY

Houston Foundry & Machine Company, 2005 White Street, Houston, is placing on the market a combination casinghead and fire extinguisher for rotary drilling wells. Construction is such that the fire extinguisher feature can be combined with the company's blowout preventer designed within the past year. Its chief purpose is for protection when a well is being drilled in.

The lower part of the assembly can be used when completing the well, while the upper part has Christmas tree features formed within the casting itself.

When used as a blowout preventer the upper part is placed between the Kelly and drill stem and lowered into the bottom part, and locked by turning to the right. There are no threads, and the upper part of the assembly seats with the lower part to form an immediate seal. When tubing has been placed, the upper part connects to the upper end of the tubing and locks into the lower part of the head. The well is then ready to be swabbed in.

The fire extinguisher, being made up of a steam line from the boiler battery and entering the bottom of the upper assembly, forms a part of the tubing connection. This insert has ball seats, if required, and connects by a series of holes on the side, which permits fluid to enter into the bowl or Christmas tree connection. The casing

Casing Head Extinguisher

is packed off below the flow lines in the lower part of the head, completely shutting off fluid between tubing and casing and entering into the area.

The steam line connecting into the head may be extended about 200 feet from the well, and water or mud, as well as steam, may be used in combatting fires.

The fire extinguisher attachment does not interfere with the swabbing or pumping the well, as the full size opening of the pipe is always maintained. If the conditions are such that the pressure between the tubing and casing builds up to a point that it is necessary to be relieved, a coupling is inserted in the casing below the packer, with connection to the outside to relieve any excess pressure. This connection can also be used to kill the well by pumping the fluid into it.

This arrangement also offers an easy method of treating the oil when necessary, by using the fire extinguisher attachment. This equipment remains a permanent fixture on the well from the time it is drilled until it has finished being pumped, and offers the same security during all that time.

Dual Drive Trucks

FEDERAL MOTOR TRUCK COMPANY

Federal Motor Truck Company of Detroit announces a dual drive six-wheeler, with six-wheel hydraulic brakes, three-ton capacity, available in four and six-cylinder engines.

The four-cylinder model is supplied in 140-inch and 160-inch wheel bases. The six-cylinder chassis in 145-inch and 169-inch wheelbases. Aside from the dual drive feature, this new Federal is basically the same as the single drive six-wheeler. It is built as a complete transportation unit, with the dual drive six-wheel feature designed and engineered into the chassis as an integral part of the vehicle. Many exclusive and patented features are claimed for this truck.

The dual drive for this new truck was developed by Federal engineers. Among the important patented Federal features of this model are the spring suspension and reservoir method of lubricating trunnion pins. Power is applied to the four rear wheels through two bevel drive full-floating rear axels with oversize differentials and driving gears.

There are two bearings on each side, one above and one below the axles attached at the center to forked bearing brackets mounted on a short trunnion shaft supported from the frame side rail.

The upper spring on one side is shackled at the forward end, while the lower spring on the other side is shackled at the rear. With this construction, there is offered considerable flexibility in the tandem unit, and also a natural tendency for the axles or wheels to "track" each other when rounding curves.

Pipe Machine

THE BORDEN COMPANY

The Borden Company, Warren, Ohio, announces the new Model A Beaver portable pipe machine which cuts, threads and reams one-half to two-inch pipe, whether steel, wrought iron, brass or cast iron. With geared tools and extension shaft this machine handles pipe up to 12-inch.

Three opening die heads are supplied: ½ by ¾-inch; one by 1¼-inch, and 1½-inch by two-inch. Dies are adjustable, and it is not necessary to back off over the finished thread.

Borden Portable Pipe Machine

This new portable machine has a one-half horsepower universal motor; reversible at the switch. The motor is connected by means of a flexible coupling. It operates from any 110 volt light line, either a.c. or d.c. The oil pump is mounted on the outside for convenience in repacking, cleaning, etc.

Main castings are of alloy aluminum, cutting down around 125 pounds in weight.

The die head can be tilted back out of the way, it not being necessary to take it off, when cutting or threading with an extension shaft and geared die stocks or pipe cutters. A convenient stand is supplied with the machine as extra equipment, if desired. Special dies are available for threading bolts, rods, etc.

The Borden Company will furnish full details on this new product upon request.

Manufacturer and Supply Dealer Notes

Axelson Manufacturing Company, Ltd., announces a change in its mailing address to P. O. Box 710, Vernon, Station, Los Angeles.

Bridgeport Machine Company has established a second branch to serve the East Texas field. This branch is located at Camps, Texas. The building has already been erected, and the stock is being shipped in at the present time. The branch will be under the jurisdiction of Fred Parks, who is also manager of the Kilgore Bridgeport store.

The company is also changing location at McPherson, and by November 1 will have an uptown store, located directly across from the McCort hotel. The company has also leased a pipe and material yard on the Rock Island right of way. This store is under the jurisdiction of Manager Fred McConnell.

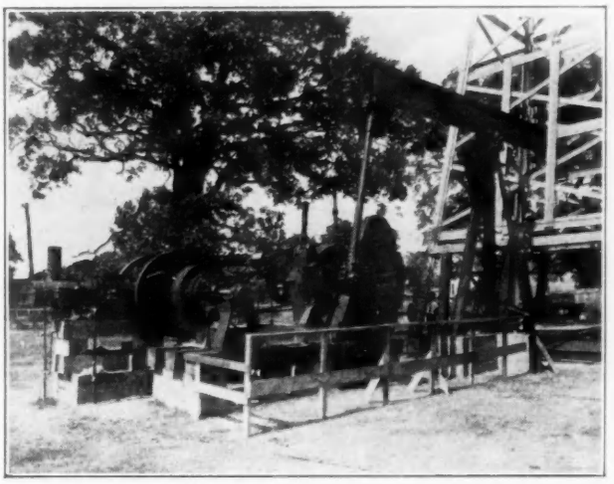
Bridgeport Machine Company has also opened a branch at El Dorado, Arkansas, specializing on pumping equipment. This store is being supervised by A. C. Bramer. Mr. Bramer is the patentee of the "Moroil Shot Packed Pump," which is being sold through the Bridgeport sales organization.

American Rolling Mill Company, Middletown, Ohio, announces through Vice President W. W. Sebald the appointment of R. C. Todd as Mr. Sebald's assistant. Todd formerly served the company as assistant general sales manager. His new duties will involve special work in connection with the company's sales activities. He has been with American Rolling Mill Company since 1900. H. M. Richards, manager of Armco's Cleveland sales office, has been appointed to fill Todd's former job. Foster E. Wortley has been given Richards' Cleveland place, and O. L. Conley has been given the job of assistant manager of the Cleveland district.

L. H. Gilmer Company announces the appointment of Charles H. Bauer as general sales manager. Bauer for the past six years has been manager of the automotive division of the company. He is international president of the Automotive Boosters' Clubs, which numbers around 1200 manufacturers' representatives, and is a member of the board of counsellors of the Motor and Equipment Association.

Caterpillar Tractor Company, Peoria, Illinois, announces the appointment of G. M. Walker as advertising manager of the company, effective September 21, succeeding Walter H. Gardner, who becomes manager of the specialty sales division. This newly formed division is created primarily to market Caterpillar engines and sub-assemblies to other manufacturers. The line of Caterpillar stationary engines include both gas and Diesel engines

W. H. GARDNER

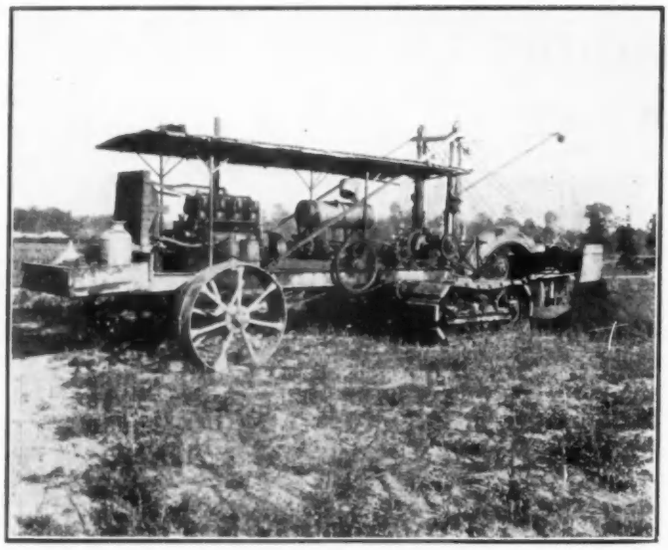


Lufkin Foundry & Machine Company had on display this pumping unit on its grounds adjacent to its plant at Lufkin, Texas, when it entertained visitors at the fall meeting of the Southwestern district, A. P. I. Division of Production, September 24 and 25. The engine furnishing the power would not be raised as high as here shown in ordinary use, being mounted here on a special foundation adapted to other assemblies. The wooden derrick was a special display of the Angelina County Lumber Company which was also host to the visitors at its plant near Lufkin.

Worthington Pump & Machinery Corporation, Harrison, New Jersey, announces, following a recent meeting of its board of directors, the election of LaMonte J. Belnap as chairman of the executive committee of the corporation. He is succeeded as president by Harry C. Beaver, formerly vice president. As chairman of the executive committee, Mr. Belnap maintains his active part in directing the manufacturing, sales and financial activities of the corporation. He is known internationally as a financial and industrial leader. The new president has been associated with Mr. Belnap in various enterprises for the past 25 years.

Pacific Pipe & Supply Company is featuring at its exhibit this year at the American Gas Association Convention in Atlantic City the new "midget" type gas odorizer, which is especially designed for service on lines carrying not more than 75 pounds pressure. The perfection duplex mercury traps and the Papico kellet orifice disc housing will also be displayed at the company's booth.

Pittsburgh Steel Products Company, a subsidiary of Pittsburgh Steel Company, manufacturer of seamless steel tubes, exclusively, plans a program of expansion in its facilities for manufacturing. As a first step in this program they have announced the purchase from Aetna Standard Engineering Company, Youngstown, Ohio, of a complete new unit of the push bench type. This is a process hitherto used in this country in the manufacture of seamless steel tubes, although it employs as a basic principle the same method as used in the manufacture of steel shell forgings during the late war. This application of the forging methods gives a high quality of tubing and possesses considerable other advantages by giving the tubing a much better finish and a much higher degree of accuracy on the diameter and the wall; also producing longer lengths. The



PROBABLY 95% of all major American cross-country pipe lines are laid in Buckeye-cut trenches.

This record and the fact that most Buckeye owners standardize on them exclusively, often employing them in great numbers, prove conclusively that Buckeye Pipe Liners give "superior performance in oil and gas field requirements".

The complete line of Buckeyes provides a suitable size ditcher for every pipe line trenching need. Each model, large or small, is built directly to the specifications of the world's leading pipe line engineers and contractors. All embody the dependable power, practical speed, up-to-date operating conveniences, and economical service that have characterized Buckeye for nearly 40 years.

Our Catalog, "BUCKEYE — The Pipe Liner", contains interesting specification and construction details.

The Buckeye Traction Ditcher Co.
FINDLAY, OHIO

There's a Buckeye Sales and Service Office Near You

for over thirty years **Buckeye**

principal feature of this method is that it will be able to produce tubes of very small diameters by the hot rolled reducing process.

This innovation in the manufacture of seamless steel tubing is expected to greatly enlarge the field of application for seamless steel tubing in the smaller sizes. This product finds its principal outlet in oil country products, piping of all kinds, automotive parts, boiler tubes and mechanical tubing generally. Buck & Stoddard, Inc., Los Angeles, are representatives for Pittsburgh Steel Products Company.

Walter O'Bannon Company, Tulsa, is mailing to customers and prospective users of its products Catalog No. 5, which is conveniently done up in form for filing in cabinets to serve as a ready reference. Within the file cover is a 24-page catalog, showing and describing all of the O'Bannon equipment for the producer. An index in the front of the catalog lists all accessories in alphabetical arrangement. Prices are carried along with the descriptions of this large line of pumping equipment. A copy of the file catalog may be had for the asking.

C. J. Tagliabue Manufacturing Company, Brooklyn, New York, announces a new and very complete 16-page catalog describing and illustrating the full line of TAG flow instruments which comprises flow recorder-controllers for liquids, flow meters and orifice meters for gases, flow recorder-controllers for gases and liquid level recorder-controllers. Following its usual custom the company has included in this catalog numerous photographs and diagrams of applications which make it far more than a mere compilation of uninteresting facts and figures. This new catalog, No. 1020, is now ready and a request on your letterhead will bring a copy by return mail.

Pennsylvania Pump & Compressor Company, Easton, Pennsylvania, has formed a connection with Byer Engineering Associates of the same city, with branch offices at 136 Liberty street, New York and 1328 Chestnut street, Philadelphia. Byer Engineering Associates specialize in direct contact condensing and cooling apparatus, barometric and low level jet condensers, reciprocating and steam jet vacuum pumps, gas washing apparatus and allied centrifugal pumps for use in connection with this equipment.

Henry E. Byer, head of Byer Engineering Associates, is well known in the condenser field, having specialized for the past 20 years in the manufacture, application and operation of vacuum apparatus while connected with Ingersall-Rand Company and Chicago Pneumatic Tool Company.

Torchweld Equipment Company, 224 North Carpenter street, Chicago, has issued the Torchweld new Blue "N" Gold pocket size catalog carrying detailed information regarding the variety and characteristics of the non-flash Torchweld line. The different styles of welding or cutting torches, units and gas pressure regulators are described and illustrated which are suitable for different manufacturing requirements. Line drawings are used to show construction and safety features of the equipment. Among the new items added to the Torchweld line since the publication of the preceding catalog are the new small torches for aircraft, auto body and light sheet metal welding also the new city or natural gas and oxygen brazing torch and the new automatic welding torches which will help solve many welding and brazing problems with a considerable reduction in operating costs.

A copy of this pocket size catalog is available upon application to the company at the above address.

Squeaks From the Bull Wheel

"How is the efficiency expert coming on at your office, Dick?"

"Fine. He was such a success for the boss that we employes hired him for a week."

"You fellows hired him?"

"Yes, with great success. He showed us a new way to beat the time clock, taught us a lot of brand new excuses for being late, and how to hook the boss' cigars without being found out."

Wife—How do you like the potato salad?

Hubby—It's delicious. Did you buy it yourself?

Tickerly—Why do they say "dabble in stocks"?

Taperson—It must be on account of the water that is in most of them.

Convalescent (to a grateful friend)—Thanks very much for the brandy peaches. Although the doctor wouldn't let me eat the peaches, I enjoyed very much the spirit in which they were sent.

A humorist who had been staying at Stratford-on-Avon asked his landlady one day:

"Who is this Shakespeare I hear so much about — was he a very great man?"

To this jocular question the landlady made serious reply:

"Why, sir, 'e worn't thought nothin' of a few years ago. It's the American tourists as 'as made 'im wot 'e is."

Rich Uncle (a strict Sabbatarian)—I am extremely sorry to learn that Eustace is in the habit of visiting a golf club on the Sabbath.

Loyal Wife (brightly)—Oh, but he doesn't play. He only pops over there for a few drinks and a game of bridge.

An insurance company wrote out a $1000 life policy in the name of one Samuel Johnson. Premiums were paid promptly for a few years but suddenly stopped. After sending a few delinquent notices, the company received this reply:

"Dear Sirs: Please excuse us as we can't pay any more premiums on Sam. He died last May. Yours truly, Mrs. S. Johnson."

"Can I help you in any way?" asked the courteous motorist on an Irish road.

"It's this petrol indicator," replied the damsel, standing beside her stationary two-seater. "It's at the half-way mark, but for the life of me I can't remember whether that means half full or half empty."

"Has any one ever been lost in crossing here?" asked a timid woman who had hired a boatman to ferry her across a river.

"No'm," was the reply. "Mah brotheh was drowned heah last week, but we found him nex' day."

The husband drew up a chair beside his wife's sewing machine the other day and remarked: "Don't you think it's running too fast? Look out, you'll sew the wrong seam. Slow down, or you'll stick that needle in your finger!"

"Why, what's the matter with you! I've been running this machine for ten years."

"Oh, I was merely trying to assist you, just as you try to help me drive the car!"

One: "Did you hear about the girl in the cotton stockings?"

Two: "No; what happened to her?"

One: "Nothing."

When better dates are made they won't be blind. Ask the man who phones one.—Wyatts Line.

Wife—John, is it true that money talks?

Husband—That's what they say, my dear.

Wife—Well, I wish you'd leave a little here to talk to me during the day. I get so lonely.

"Stop! Please don't do that, dear, Stop! Do you hear me? Stop!"

"What do you think you're doing, writing a telegram?"

"Gentlemen of the jury, have you come to a decision?"

"Yes, your honor. This jury are all of the same mind—temporarily insane."

"Did you know that Reed is in the hospital?"

"No! Why I saw him only last night, dancing with a dizzy blond!"

"So did his wife."

"Papa," she asked, "ain't you a little 'fraid of bugs?"

"No, dear."

"Ain't you 'fraid of snakes and frogs, daddy?"

"No, dear."

A pause and the little miss asked: "Papa, ain't you 'fraid of nothing else in the whole world 'cept just mamma?"

"What shall I do? I'm engaged to a man who says he simply can't bear children."

"Well, you can't expect too much from a husband."

ARE YOU PAYING *Jack-of-All-Trades?*

The APPLEMAN Company specializes in bits. Our engineering efforts are concentrated on bits. Therefore, it is not surprising that APPLEMANS should be head and shoulders above others. A Jack-of-all-trades is usually master of none. Other companies manufacture too many different products to be specialists.

WATER COURSES lead direct to cutting edge, producing maximum cooling effect.
SELF SHARPENING EDGES due to concavely formed blades.
SIDE WALL CUTTING: Cuts side wall as it drills. Accomplishes full round hole and well prepared side wall. Holds gauge longer. Reaming rarely necessary.
STRAIGHT HOLE: Less weight is needed to feed the bit. Drillers who use APPLEMANS for the first time are astounded at how straight a hole they can drill.

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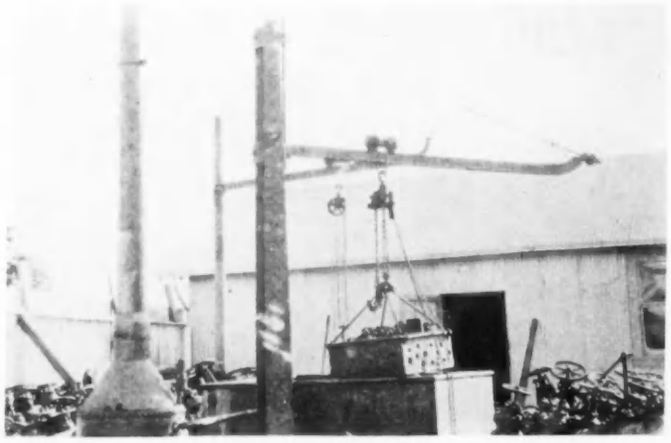

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Let our nearby Service Man give you further details. Write us to have him call. No obligation.

Oakite Service Men, cleaning specialists, are located in the principal industrial centers of the U. S. and Canada

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Industrial Cleaning Materials and Methods

AN "AMERICAN" WITH GAS ENGINE

Pictured is an "American" No. 4-A Fig. 1822 oil well pumping unit direct connected to a gasoline engine.

"American" units have been particularly designed to meet the various drive requirements of different localities. "American" units are adaptable for pulley, V-belt or direct drive by gasoline engine or electric motor.

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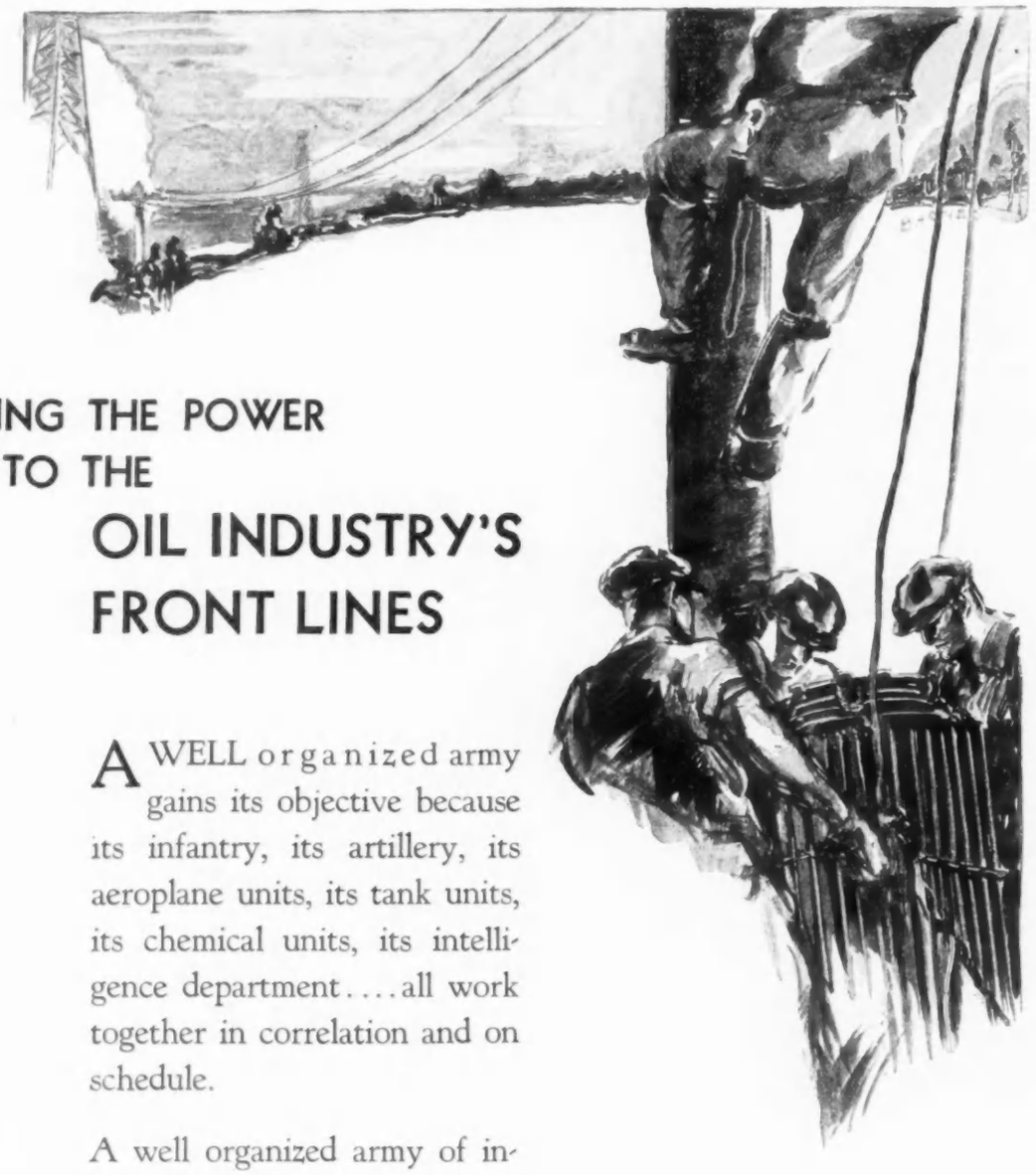

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